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TIMES PAST — THE TIMES

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Seven polytechnic points

Dr Harry Law, the new president of Portsmouth Polytechnic, suggested a seven-point plan for the "evolution" of the polytechnics in his inaugural lecture last week. His plan was plainly put forward in a constructive spirit. So any reaction to it should be in the same spirit. After almost two years of rather negative arguments first about whether the polytechnics belong in the local authority sector at all and subsequently about the virtues and vices of the National Advisory Body, it is time for a positive initiative. It is in no one's interest that the present configuration of the polytechnics should be frozen. As Dr Law insisted in his lecture, the binary policy must be allowed to evolve.

The first three points in the Law plan are radical proposals which if implemented would seem to require a fundamental reform of all higher education, not just the polytechnic and college sector. He suggests that a national formula-based approach to funding should be developed that transcends the binary line; that dual funding for teaching and research should be extended to the non-university sector, or that research funds should be allocated separately and centrally to both sectors; and that "a national planning mechanism" for all higher education should be created.

Although radical, Dr Law's suggestions are perhaps not as far-fetched as they appear at first sight. The work of the NAB will inevitably, and quickly, lead to the much more accurate and specific description of teaching costs in different subjects in polytechnics and colleges. This in turn will identify the wide gap between unit costs in the non-university sector and in the universities – described so starkly by Patrick Nuttgens in his column on page 26 – as mainly attributable to the extra cost of providing a research floor in the latter. This in its turn will reinforce the growing doubts about the wisdom of distributing research money so indiscriminately and so exclusively to the universities, despite the defence of the traditional dual support system recently attempted in the Merrison report.

Dr Law probably has more support than he supposes for his second suggestion, that the dual support system should be extended or scrapped. If this second suggestion is so generally supported, support for his first – formula-based funding – is an almost inevitable precondition. The only caution that should perhaps be expressed is that formula funding should be an input not an output. Funding bodies whether the NAB or the University Grants Committee should be free to back their hunches by making subjective, and so discriminatory, judgments about how money should be distributed. Otherwise formula funding carried to rigid extremes becomes a recipe for an immobilism that can only be modified by central *diktat*.

His third suggestion that some "national planning mechanism" should be developed for higher education as a whole is perhaps more controversial. After all, the Department of Education and Science is supposed to plan higher education (with help from the Scottish Education Department north of the border). For its part the UGC is likely to be highly apprehensive of any attempt to subordinate it to a superior supra-binary agency, and for rather different reasons the NAB may believe that it can only establish its separate identity and develop its distinctive procedures behind the protection of a *cordon sanitaire*. Yet the case for an over-arching body is strong. First, there are policy questions that are trans-binary – sometimes the most important questions. Second, the detailed articulation between the two halves of higher education cannot be left to unplanned chance.

Dr Law's other four suggestions, ostensibly more limited in scope, are in fact likely to cause greater difficulty. Two – that validating arrangements in the non-university sector should evolve to allow the polytechnic greater freedom, and that a Universities Central Council on Admissions-style clearing house for polytechnic degrees should be established – are matters on which the polytechnics themselves, together with the Council for National Academic Awards, can make progress without outside intervention. There are, of course, dangers. The standing of CNAA degrees, so carefully built up and sustained, must not be jeopardized, and any clearing house for degrees must be so designed as not to devalue non-degree courses.

The final two points in the Law plan – that suitably mature polytechnics (and colleges?) should receive charters, and that "hindrances to entrepreneurial activity" should be removed – are perhaps the most controversial of all because they imply that local authority higher education must receive different and better treatment than further education and the schools. Even if this big question is left on one side, the case for these two final reforms is not especially strong. There is no evidence that those polytechnics which enjoy greater legal autonomy, such as those in inner London, are in practice free to do more exciting things, or conversely that the lack of corporate autonomy and the dead hand of the Local Government Acts have significantly inhibited entrepreneurial activity. Certainly there are inhibitions – but they are not necessarily or mainly legal and constitutional ones.

With these two final suggestions we return to the earlier and more fundamental debate about the future direction of the polytechnics, and by extension of all higher education – for higher education so separate in function and reputation that it requires separate treatment in terms of administration and funding? This is what the row about models A and B and the NAB was all about. Yet that is no reason for blocking progress on the pragamatic reforms suggested by Dr Law. The sharp division of opinion about whether the binary policy should be abandoned should not stifle the broad consensus that the policy must, in Dr Law's word, evolve.

Laurie Taylor

Yes, do come in old chap. Grab a seat. Oh God, is that damn thesis still in the way? Can't understand a word of it, but if I don't recommend a doctorate the silly devil will only re-submit and I'll have it back on my armchair again. Anyway, chuck it on the floor for now. Make yourself comfortable. You busy?

No, no. Won't be a tick. I was just checking my diary; trying to decide when to fit in this term's heavy cold.

You haven't had it yet? Leaving it a bit late aren't you?

Yes. Silly of me actually, I usually pop it in at the beginning. Week one or two. But I had such a full teaching load then that I decided I needed rather more than a cold – so I went down with a nasty bout of 'flu. Way back in October. Straight after the summer break. It was quite ridiculous: I was still brown.

Oh yes, I remember you were away. Did you manage to take the full week?

Pretty well. Rang up a couple of times and did a bit of croaking and wheezing to more or less get across the idea of fighting for breath. Then came in on Thursday, contrived a few lurches and a couple of staggers; complained about the building being appallingly hot; and eventually the secretary suggested I'd be better off in bed. So it was straight home for a long weekend. How about you? Got anything still due this term?

No, not much. I had a pretty severe bout of 'flu in week six, and will probably stick at that except for a possible virus next Wednesday.

Any particular one?

Gastric I thought. Vomiting during the night. General nausea. That sort of thing.

Yes. Not bad. Although a bit severe for one day. Have you thought about Band of Pain?

I don't think I know it.

Professor Grunton developed it last term. Unforgettable. One finger held almost permanently against the right temple, heavyish frown and lots of confidential comments to everyone in sight about the band of pain behind the eyes and not being able to shift it with six paracetemol. Very telling.

Mmm. Sound a little as though it might clash with next term's head cold.

True. But well worth trying when you need to go down suddenly without any visible symptoms.

Sounds ideal for the departmental meeting on the last Friday.

Possibly. But I'd check with Gruston first for that day; he may be using it himself.

Not to worry. Only one whole week to the end of term.

Yes indeed.

You going anywhere for Christmas?

Not really. We were planning to stay with my parents for two weeks but fate decided otherwise. Oh I'm sorry. Something serious?

Yes it is rather. I'm unlucky enough to be going down with malaria on Christmas Eve.

An AUT–Natfhe merger?

The extreme difficulty of constructing a salary claim in the face of a fierce public sector pay policy was clearly demonstrated at last weekend's special conference of the National Association of Teachers in Further and Higher Education in London. No doubt it will be demonstrated again at the winter council meeting of the Association of University Teachers in Bradford next week.

The source of this difficulty is the Government's determination to allow only an extra 3½ per cent for wage increases in the public sector next year. As some groups are likely to receive higher increases, either because they are favoured by the Government or because they have a lot of industrial muscle, others may have to take less. These are likely to be those which are not favoured by the Government and do not have great bargaining strength – which seems uncomfortably close to a description of teachers whether in universities or polytechnics and colleges.

The response of trade unions is inevitably one of solidarity – for two reasons. First, they believe that by presenting a united front they increase their ability to break through the pay norm imposed by the Government and so secure larger salary increases all round. Second, they regard solidarity as a necessary defence against any Government attempt to divide and rule by allowing special cases and cracking down even harder on less popular or powerful groups. Solidarity among trade unions therefore is especially important for such groups.

This leaves unions like the AUT and Natfhe with very little room for manoeuvre. Whatever hope they may have for increases of more than 3½ per cent depends crucially on the collective strength of all public sector trade unions. Equally their main defence against being picked off by the Government depends on the solidarity of these unions also, which in the case of the more powerful means [illegible] in pursuing their own [illegible] the substance of any claim by the AUT or Natfhe must be decided by reference to other public sector union claims coordinated under the aegis of the Trades Union Congress. Their effective freedom to shape their own claims is very much reduced.

Although an inevitable strategy, it has its own drawbacks. The most important is that it prevents unions from attending to particular problems which are unique to them. Every union after all has its own causes which it works away at year after year. Natfhe is committed to a policy which would allow automatic transfer from the lecturer 1 to lecturer II grade, which is important for its members in further education, it also wants to see a lengthening of the senior lecturer scale, which is important for its members in higher education concerned about links with the universities. It also seeks to reconcile egalitarianism and hierarchy by seeking flat-rate topped up by percentage increases.

The AUT for its part is concerned about the position of untenured researchers, although normally from the point of view of security of employment as much as of pay. It also seeks to increase the proportion of senior posts. Traditionally it has gone for straightforward percentage increases although the pressure for flat-rateism is growing. In both cases these detailed issues are important because they represent the detailed concerns of teachers in universities, and in polytechnics and colleges. Yet under the conditions that prevail today there is much less chance of making significant progress on any of them than in the past. That may mean that trouble is being stored up for the future.

There is, of course, no immediately available solution. It is better to achieve a (barely) adequate salary settlement even if it means that particular causes have to be abandoned, than to receive a completely inadequate increase. Yet if this pattern of broader public sector unity, even homogeneity, is to prevail into the future, there is a case for questioning the present division into separate unions. There are many objections, both principled and practical, to a merger between the AUT and Natfhe. Yet if it could be achieved, the sum would be greater than its parts. A better and more stable balance might be achieved between the need for collective strength and the pursuit of particular higher education causes.

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Reluctant NAB go-ahead for two-year diplomas scheme

by John O'Leary

Local authority leaders agreed this week to press on with the National Advisory Body's controversial discussions on the replacement of a large number of degree courses by two-year diplomas.

The NAB committee, chaired by Mr William Waldegrave, under secretary for higher education, agreed to release its paper on a possible future strategy for debate by the board. But, in doing so, members stressed that they were not committed to the proposals.

The paper, written by Mr John Brennan, the NAB secretary, caused heated disagreements in the original debate by the committee in October, which ended inconclusively. Board members were furious when they were refused copies of the report last month.

Its proposals, which include a stronger emphasis on vocational courses aimed at home-based students on a new range of two-year courses, are bound to be given a rough ride. Although the paper deals with a strategy for the late 1980s, any change would have to be reflected in the coming planning exercise for 1984–5.

The aim of the paper is to stimulate discussion on ways of accommodating increasing numbers of students on declining resources. It questions whether the traditional "Robbins model", concentrating on individual opportunity in relation to three-year degree courses is the most appropriate for the public sector, which is said to be based on a "qualified professional model".

Mr Bevan acknowledges the difficulty of balancing individual access, employment needs and resource constraints. But NAB should attempt the exercise in the interests of the sector it serves, he believes.

"One possible synthesis offers itself, if access is to be maximized while allowing employment-related needs to influence provision to a greater extent," the paper says. "If more students take all, or some, of their higher education part-time; if more students live at home: if a greater proportion of initial courses of full-time higher education are shorter rather than longer: then conflicting demands on the system can be met."

The alternative is said to be reduced access, whereas the preferred model would release resources for both continuing education and for full-time places for a greater proportion of school-leavers and mature students.

But the paper continues: "There is no doubt that just as there could be argued to be advantages in such a synthesis (better fit with industrial and commercial manpower needs, more access to higher education), there are also disadvantages. In so far as the public sector might be uniquely identified with this approach, it will be argued that what is in contemplation is an inferior form of higher education for some students, with a 'second class' status for the local authority sector."

The two-year courses would probably be based in the colleges of higher education, some of which could form an equivalent sector to the United States' community colleges. The courses would lead to diplomas, which would not necessarily lead on to degree courses but would be free-standing and based on the Higher National Diploma.

Ministerial guidance to the NAB is likely to be issued early in the New Year, the Commons select committee on education was told this week.

Mr William Waldegrave, under secretary for higher education told the committee that it was NAB's purpose to ensure money allocated through the pool was spent on the institutions to which it was allocated.

Big spenders protected in funding compromise

The NAB committee this week settled for a compromise in the tug of war between colleges and polytechnics over the distribution of next year's advanced further education pool, write John O'Leary and Felicity Jones.

Recommendations backed by the NAB board and the pooling committee for equal treatment for all public sector institutions were adopted unanimously. But it was agreed that "mitigation" should be introduced into the distribution formula to prevent drastic funding changes in advance of the planning exercise now under way throughout the sector.

As a result, traditionally high spenders will be protected for a further year and rewards for the most cost-effective institutions will be reduced. The mitigation will compress the differences in budgets between this year and next, leaving only a small number of authorities with allocations close to those recommended by the board.

A range of options was presented to the committee, all designed to reduce the rate of change. None involved special treatment for the polytechnics, although they will be the main beneficiaries.

North East London Polytechnic will still be the biggest loser but its cash cut will be reduced from more than 14 per cent to less than 10 per cent before allowing for inflation. Middlesex Polytechnic, too, will have a cash 5 per cent lower than expected.

At the other end of the scale, Oxford Polytechnic would have received a 6 per cent increase under the board's recommended formula, but mitigation will reduce the figure to around 3 per cent. Some of the biggest gainers, colleges which will be rewarded for Datec courses included in the pool for the first time, will be given 20 per cent budget increases, rather than the 25 per cent they would have received.

Local authorities should be notified of their allocations next week, assuming the agreement of Sir Keith Joseph, Secretary of State for Education.

The new system received a predictably critical reception. Mr Neil Merritt, chairman of the Colleges' and Institutes' Group, was delighted that the principle of equal treatment had been confirmed and thought the inclusion of mitigation sensible in advance of the NAB planning exercise.

But despite the lower cut than expected the entire humanities department at Middlesex Polytechnic stands on the knife-edge of closure with 70 full-time and 34 part-time academic staff posts under threat.

Director Dr Raymond Rickett revealed that one of the major sites would have to close.

Mr Rogor Waterhouse, head of humanities, has revealed that the faculty's All Saints' building in Tottenham is the targeted site for closure. He believes that the axe will extend to the whole faculty.

He believed that with a budget of more than £22m and a slightly less than 10 per cent cut next year, a site closure would be an insufficient saving and said the directorate had underestimated the effect on staffing. In addition to the 37 redundancies earmarked, Mr Waterhouse thought a further 52 posts would need to go to make a further £800,000 saving.

Students and staff at Westminster College, London's department of professional cookery have boned, stuffed, cooked and blast frozen more than 3,000 turkey portions to be served to the homeless on Christmas Day by the charity 'Crisis at Christmas'. 1,200 lb of turkey and stuffing, together with trimmings and puddings cooked on the day, will be served in an empty Greater London Council Building in Victoria.

Aston council vote throws Crawford plan in confusion

by David Jobbins

New plans to safeguard Aston University's future finances are to be drawn up after a decision to shelve threatened compulsory redundancies for up to 40 lecturers until July at the earliest.

The university council voted this week that no academic should be declared redundant until after July 12, throwing into confusion proposals strongly supported by vice chancellor Professor Frederick Crawford to remove staff from the payroll by the end of the academic year.

Its effect is to prevent savings on salaries which the university had hoped to make from the start of the 1983–84 academic year. Instead the council called for a full investigation of alternative financial strategies which might avoid indefinitely the need for compulsory redundancies – a line vociferously backed by the Association of University Teachers which regards Aston as a crucial test of its fight against job losses.

The AUT believes that the operating deficit of £700,000 after the planned contraction of the university can be offset by reshuffling money currently allocated to the development plan which will not now be needed and by savings on maintenance costs.

The accumulated deficit could be met by using £831,000 earmarked for innovation and from the university's reserves, the union believes.

Progress will be reviewed at the council's April 1983 meeting – and a key factor will be the number of staff who leave voluntarily.

While not seeking to claim a major victory, AUT leaders hope that the pressure for compulsory redundancies at Aston will die away, as at Aberdeen. They are consulting their lawyers on the status of the writ issued against the university alleging that the decision by an 19–17 ballot of council members to endorse com-

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Government allocates £30m for 'new blood'

by Paul Flather and Jon Turney

The Department of Education and Science this week released details of the science budget for 1983/84. It confirmed that the University Grants Committee will receive an extra £30m over the next three years for "new blood", mainly in the natural sciences.

Allocations to the five research councils follow the recommendations made in the Advisory Board for the Research Councils' forward look in October, with the anticipated exception of the Social Science Research Council.

The money taken from the SSRC, together with a small amount freed by changing inflation and wage rates, goes to the Science and Engineering Research Council. The Natural Environment Research Council will receive nearly £4m more than recommended to expand the British Antarctic Survey.

The final division of the £516.5m science vote, given in a written Parliamentary answer to Mr Harry Greenway, MP for Ealing North, is as follows:– Agricultural Research Council – £46m; Medical Research Council – £113.7m; Natural Environment Research Council – £62.5m; Science and Engineering Research Council – £254.5m; Social Science Research Council – £22.2m; British Museum (natural history) – £12.7m; Royal Society – £5m.

Sir Keith Joseph, Secretary of State for Education, said in a letter to Sir Alec Merrison, chairman of the ABRC, that the extra money for "new blood" in universities would be mainly for posts in the sciences. The research councils would be involved in selection of suitable recipients. The scheme also follows the ABRC's recommendations very closely.

Details of the three-year "new blood" scheme were expected at the end of this week, and are likely to include 210 new teaching and research jobs in information technology, an area given high priority by the prime minister.

There has been some disagreement about the distribution of the remaining 600 new posts, but the final breakdown will almost certainly give 170 a year to natural science departments and only 30 to humanities and social sciences.

Sir Keith believed that posts were most needed in science, but the

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Financial facts from the UGC

Universities spent £917m on salaries and wages during 1981/81, a rise of 28 per cent over 1979/80. This was 71 per cent of their general funds and £512m of it went to pay teaching and research staff. These are among the latest figures on university finance published by the University Grants Committee.

The universities' recurrent income during the year was £1,560m of which £979m (63 per cent) came from the Government; £266m (17 per cent) from fees and £202m (13 per cent) from research grants and contracts. While the Government's contribution was up by 22 per cent, income from fees rose by 34 per cent, largely because of the increased charges to overseas students.

Universities spent a total of £1,550m in the year, a rise of 24 per cent, of which £1,286m went on teaching, research and what is described as "normal running activities".

Departments to go

Three or four teaching departments will be dropped over the next four years at Sheffield Polytechnic, says principal Dr George Tolley in his annual report, with student numbers reduced by 800 and cutbacks in humanities and social studies.

Full-time students will make way for more part-time and sandwich-degree students and the staff-student ratio will rise to 14:1. Dr Tolley said that the resources were inadequate to maintain the quality of teaching and realistic attitudes had to prevail.

Personal choice

The Secretary of State for Employment decided this week to go ahead with his own choice for the education seat on the Manpower Services Commission, in spite of strong protests from further education organizations.

Mr Norman Tebbit said Mr Wilson Longden, vice-principal of Barnfield College, Luton would succeed Mr Roy Helmore, principal of Cambridgeshire College of Arts and Technology. The National Association of Teachers in Further and Higher Education, the Association of Principals of Colleges and the Association of Colleges in Further and Higher Education had jointly nominated Mr Derek Lyne, principal of Bedford College.

Architecture to go

Bristol University's school of architecture is to close in 1984. The decision was taken at a court meeting last week after an emotional three hour debate. The voting was 124 to 91. The meeting also passed a motion in favour of the way the issue had been handled by the senate and council.

ACSET debates quality policy

from Patricia Santinelli

Colleges may be asked to separate their teacher training students into three groups, only one of which would be awarded the status of qualified teacher at the end of their course.

This is one of several Department of Education and Science proposals to be debated by the Advisory Committee for the Supply and Education of Teachers early next month. The committee has been asked to consider how regulations on the award of qualified teacher status (QTS) and the approval of training courses can be tightened.

Education Secretary Sir Keith Joseph is known to believe that QTS is awarded in a "profligate" way with unsuitable candidates finding their way into the teaching profession. His view is shared by some members of Her Majesty's Inspectorate.

The proposals have already been outlined in a DES draft submitted to ACSET's teacher training sub-committee which was sent back for redrafting.

Under the separation plan institutions would be asked to organize their courses so that those students who proved to be academically competent but not successful in the classroom could be diverted to a different course after one or two years. Another option would be to allow them to complete the course but to award a degree which did not carry QTS.

"Institutions should be encouraged to adopt course patterns, including links with schools which identify as early as possible students who are unlikely to display satisfactorily the personal and professional competence needed," the earlier draft said.

Several members of the sub-committee felt that institutions would find it extremely difficult to adopt this style of courses, and monotechnics might be in an invidious position.

ACSET is also to be asked to undertake a survey of existing professional committees to see how they could cope with the new role the Government wishes them to undertake in course review and reapproval. The committee is also to advise Sir Keith Joseph on the criteria that should be applied when approving a course of initial teacher training.

The committee is worried that if it does not move fast enough, Sir Keith might go ahead and make his own recommendations without the benefit of their advice. Some members fear that the DES may already have an alternative plan prepared.

The playing fields of Essex University resembled a minor Nato base this week when a Jolly Green Giant helicopter of the United States Air Force was grounded with mechanical trouble after it lifted the mount for new satellite reception equipment on to the roof of the electrical engineering block. A relief helicopter took over the task of lifting a dish three metres across and weighing nearly one ton. Dr B. G. Evans from the university's electrical engineering department is directing the Bistatic Radar Project which is funded by the Science and Engineering Research Council. It is to investigate the effects of atmospheric water and ice on microwave reception from satellites.

UCCA applictions show huge rise

Applications to the Universities Central Council on Admissions are up by 3.7 per cent so far this year compared with 1981. The council had received 88,513 applications by mid November against 85,380 at the same time last year. The four per cent rise in home applications masks a two per cent drop in overseas applicants. Women candidates total 38,945 compared with 37,216 in 1981.

Universities lose one in ten full-time engineering staff

by Jon Turney
Science Correspondent

University engineering departments lost nearly one in ten of their full-time academic staff in the year which ended in October.

The overall figure comes from a survey by the engineering professors' conference and is roughly comparable with losses in other subjects, in spite of the Government's wish to protect engineering.

But it does go against an initial assessment from the same survey which described "widespread belief" among engineers that their discipline had been worse hit than others.

First returns, from only 18 universities, appeared to indicate that engineering staff losses were one or two per cent higher than those in science, arts and social science. When the survey organizers encouraged more institutions to reply, the differences all but disappeared.

The latest figures, from 27 universities, show losses of 9.1 per cent for both engineering and technology and science, 9.3 per cent for social science subjects and only 8 per cent for arts departments.

More significant are the ten-year trends extracted from the same figures. These show that while the social sciences are still well above their 1971/72 staff levels, engineering and technology are now significantly below the numbers of 10 years ago."

On student numbers, the first 18 replies indicated that the total population in university engineering departments in the current academic year would be seven per cent higher than in 1979/80, or five per cent above the University Grants Committee's recommendation.

This implied admission of 200 fewer home students than in 1981/82, compared with the reduction of 900 needed to comply with UGC guidance, and entry of 300 fewer overseas students.

However, the global projections conceal very large differences between universities, with some institutions achieving 20 per cent increases in undergraduate admissions, and some facing 30 per cent cuts.

Principal gets new home

St Andrews University is to go ahead in the face of strong opposition with £700,000 renovations to provide its principal with a new house.

The original court decision was reconsidered this week at the request of the university's Association of University Teachers but the meeting stood by its original plan.

It is understood, however, that the court has agreed to review the general policy of providing accommodation for its principal and consider ending it when the principal, Dr J. Steven Watson, retires in four years.

Dr Watson has been living in rented accommodation for the past two years after leaving the official residence because he felt it was too large. The university says that this decision has saved St Andrews an estimated £100,000.

Now it plans to repair two university properties which are said to be in a very poor condition. It will keep one for Dr Watson and his successors and sell the other.

The AUT accepts there is a contractual requirement to provide Dr Watson with accommodation. But it says that the university should not be planning to spend £70,000 when it has refused to lift a threat of redundancies.

Dr James Lawrence, AUT secretary, said: "The decision is completely incompatible with the university's aim of losing 16 jobs by October.

Huge gaps in library spending

by Karen Gold

Huge discrepancies in library book spending in universities, polytechnics and colleges were revealed in a National Book League study published this week.

The study *Library Book Spending in Universities, Polytechnics and Colleges* shows spending cuts of up to 50 per cent. These will deprive students of vital books and academic staff of research outlets, the league said.

University purchasing power for books reduced on average by 21.5 per cent in 1981/82, while in polytechnics the 1980/81 reduction was 20 per cent.

Universities allocated 4.5 per cent of their total spending to books, compared with the polytechnics' 2.7 per cent. The percentage reduction in colleges for 1980/81 was smaller, at 7 per cent, but they only spent 1.1 per cent of their budget on books in the same year.

But those figures disguise enormous differences between institutions. University annual spending on books per student averaged £59.80 in 1980/81, but individual spending varied from £257.70 to £8.

No figures for average spending per student are given for polytechnics, but the disparities are similar – from £132.14 at Hatfield, which had by far the largest increase with more than double the previous year's book allocation, to £16.63 at Huddersfield, which also sees the year's largest fall of 50.2 per cent.

Almost every local education authority spent less than that on their college students, with most spending between £3 and £9 in 1979/80, falling to £1.70 in Barnsley, £1.91 in Knowsley in Merseyside and £1.99 in Solihull. The exceptions were some Welsh authorities. Dyfed spent £37.84 and Powys a massive £79.15 in the same year.

Commenting on the study Lord Wolfenden, honorary chairman of the University, College and Professional Publishers Council, said: "The figures set out in this document are terrifying. Not only is one hitherto successful industry, publishing, in danger of extinction, with the consequence that the results of academic research in this country will no longer be available to scholars in other parts of the world."

Students leak cuts proposal

Students at Preston Polytechnic have published a letter which outlines budget cuts of up to £2.4m. The paper was written confidentially for Lancashire County Council's chief education officer, in readiness for the National Advisory Body's planning exercise.

The polytechnic's student union publicized the letter last week and criticized the effect such a big cut on the country's smallest polytechnic would have on the local economy. The student union's president, Paul Holton, said that if the plan succeeded the benefit of the polytechnic to the county would be undermined.

The budget of the polytechnic is £10m and such an enormous reduction would put it into a critical position. But Mr Brian Booth, the polytechnic's deputy director, rejected the student's reaction as "very premature".

He said that the letter covered all the possibilities and the £2.4m was the figure given if total further funding were phased out immediately from the Advanced Further Education pool allocation. "There is no suggestion that it will be phased out next year nor is it likely by 1984/85 either," said Mr Booth. He confirmed that the directorate was considering a £1m cut over two years with a loss of 40 academic staff posts.

The students are unconvinced by the directorate's assurances. They fear that courses in fashion and social studies among others may be lost.

CDP announces poly clearing system

by Felicity Jones

Polytechnics and colleges came closer to getting a clearing house for admissions when the Committee of Directors of Polytechnics agreed last week to launch plans to deal with applications from 1984.

It will formally approach the Universities Central Council on Admissions to see if it can arrange to make use of UCCA's computer facilities and its expertise. Meanwhile polytechnics and colleges will be consulted before a final decision is made at the CDP's annual meeting in March.

Dr Harry Law, chairman of the CDP's working party on a clearing house, said it would be a very tight schedule. They would have to appoint staff and compile a polytechnic equivalent to the UCCA booklet as well as application forms in time for applications for the 1985 intake.

The form would be distinct and separate from the university application form and would handle the 30,000 or so applicants for 30,000 full-time and sandwich degree courses in polytechnics and colleges. The present clearing house for teacher training would continue as a separate system.

Dr Law said that the possibility of setting up a separate clearing house from UCCA was rejected on the grounds of expense. UCCA had spare capacity and they hoped that adding the polytechnics and colleges to the workload would help reduce cost.

It is likely that the university application form would be adapted to provide four options for degree courses and a reserve option for a higher diploma degree.

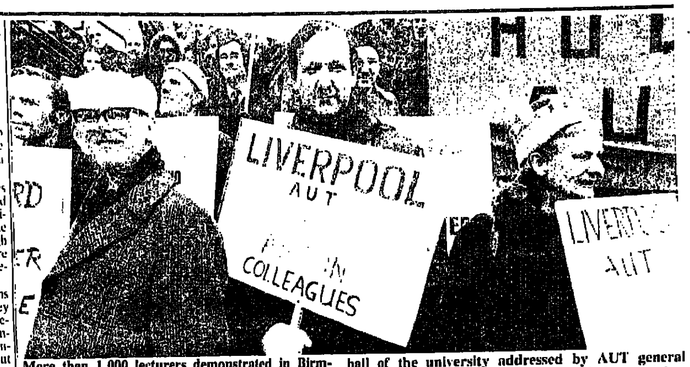
"We would be like the universities and allow for late applications and individual applications to an institution," said Dr Law. "But all the applications would be fed through the clearing house so that there would be a complete statistical record."

Although informal discussions have been held, Dr Law said they could not predict what the management board of UCCA nor the Committee of Vice-Chancellors and Principals would eventually decide. But he was convinced that an application system was essential to cope with the increase in qualified students when resources were being cut back.

● The demand for higher education is still rising according to figures released by the Committee of Directors of Polytechnics which show that first year home students rose by 4 per cent. The swing upwards in science and technology courses was especially marked with a 9.5 per cent increase in all years on degree courses.

On first degree courses, there has been a 12 per cent rise for all years. This presents a counter-trend, says the CDP, to the pressure developing at national level to switch public sector opportunities to less demanding two-year courses.

It seems likely that the total full-time and sandwich student population, including overseas students (which have fallen by 17 per cent) and late enrolments, will reach 150,000 for 1982/83.



More than 1,000 lecturers demonstrated in Birmingham this week against plans to breach tenure by declaring up to 40 compulsory redundancies at Aston University. The demonstration included a silent lobby of the council meeting which shelved redundancy plans until July and a rally in the great hall of the university addressed by AUT general secretary Mr Laurie Sapper, and Labour higher education sapokesman Mr Phillip Whitehead. Academics travelled from as far as Aberdeen, Bangor and Southampton to show their hostility to the plans.

Aston council vote causes confusion

continued from front page

pulsory redundancies was a breach of Aston's charter and articles.

As well as the threat of legal action, the university came under massive pressure to drop its plans. More than 500 protest letters were addressed to council, while Mr Denis Howell, the Labour MP for Birmingham Small Heath and a member of the university court demanded a meeting with Professor Crawford and threatened to raise the issue in the House of Commons.

More than 1,000 AUT members lobbied the meeting and later attended a rally at which the Labour Party's spokesman on higher education, Mr Phillip Whitehead warned that there seemed to be a determination to see to it that tenure could be breached somewhere in the university system.

Mr Laurie Sapper, general secretary of the AUT, said afterwards: "I hope we can now get down to discussing on a reasonable basis how we can avoid the necessity for compulsory redundancies."

● Compulsory redundancies of the two lecturers and one academic-related member of staff at the London School of Hygiene and Tropical Medicine now seem inevitable following the refusal of the Department of Health to continue to fund the school's centre for extension training in community medicine. The centre is to close at the end of March but the DHSS has agreed to pay the staff's salaries until next September. The dean of the school, Dr Smith Gordon, believes that the academics, one of whom is an AUT member, may find other jobs. But union officials admit that the prospects for its academic-related member at the centre are less promising.

London merger delayed by words

by Sandra Hempel

The announcement of an intended merger between three London University colleges has been postponed because of last-minute snags.

King's, Queen Elizabeth and Chelsea had intended to ratify a declaration of intent this week and issue a public statement.

But the colleges were unable to agree the exact wording in time and the statement has been delayed until at least the New Year. In the meantime the three principals and the chairman of the college councils will meet again to try to resolve the problems.

One sign of the difficulties came when Queen Elizabeth's academic board changed the wording of a paragraph in the draft declaration relating to the sites on which the new institution would be based. A passage referring to the need to operate on "either two or three main sites" was changed to "at least two or three" and the word "main" deleted.

The final agreement is thought to depend mainly on King's and QEC. Chelsea is a late and very keen addition to the merger plan and the college has yet to take its place on the joint planning committee.

All three institutions insisted this week that the delay was caused by a combination of arguments over choice of words and red tape, and that the commitment to merge remained total.

Students at Chelsea College occupied the administration buildings for two days this week in protest over the merger. They were particularly concerned about the possibility of "bussing". They left after receiving assurances from the school's vice-principal and academic registrar that they would be kept informed of future developments and that Chelsea would try to persuade its partners to include student representatives on the joint planning committee.

NAB approves extra places

The Secretary of State for Education has been asked to approve the funding of 1,200 additional places in information technology at 16 colleges and polytechnics.

The National Advisory Body committee last week approved recommendations for distributing the £2m made available for information technology at the last minute in the advanced further education pool. Four colleges were added to provide courses at technician level, so the list is: Sheffield, Brighton, South Bank, Hatfield, North Staffs, Leicester, Portsmouth, Coventry, Kingston, Teesside and Sunderland polytechnics, Gloucester College of Art and Technology, Slough College of Higher Education, Brighton Technical College, Chelmer Institute of Higher Education and Doncaster Institute of Higher Education.

Mr Leslie Wagner, assistant secretary (academic) of the NAB said they had been impressed by the thoroughness of the submissions which were provided at such short notice.

The low cost per student arises because the £2m does not fund fees and covers only seven months and not the full academic year. A third of the money is going to postgraduate work, a quarter to first degrees and the rest to higher national diploma and BEC, TEC work. The NAB hopes local authorities will provide for capital outlay.

Reprieve teacher education at Thames Poly, says ILEA

by Patricia Santinelli

The Inner London Education Authority decided this week to ask Sir Keith Joseph, the Secretary of State for Education, to reprieve teacher education courses at Thames Polytechnic.

Mr Neil Fletcher, chairman of the ILEA further and higher education sub-committee will present Sir Keith with detailed case for survival put forward by Mr Norbert Singer, the polytechnic's director.

Mr Singer pointed out that when initial teacher training was reviewed again in two years' time it would be necessary to reinstate both the BEd primary and BEd physical education courses run on the polytechnic's Dartford site.

He stressed that the primary BEd degree had recruited well above the official target within two years of being launched in 1979, an achievement matched by very few in the country. All students available for employment this summer had now got jobs.

Although the BEd physical education degree had not recruited so well, it was likely to reach its target next year. The polytechnic had some of the best facilities for physical education in this country, he stressed.

He added that the decision to close both courses flew in the face of widespread professional opinion and the views of Her Majesty's Inspectors. He referred in particular to the latest HMI report *The New Teacher in School* which he said, confirmed views that BEd courses at the polytechnic precisely met the needs of teachers in schools.

However, Mr William Waldegrave, under-secretary for higher education, told a Thames Polytechnic delegation that he would not reprieve its teacher education, nor that at any of the other nine institutions under threat.

Mr Waldegrave said that Sir Keith's November announcement stood and the decision would not change. He also ruled out any hope of allowing the ILEA to decide on the allocation of teacher education places within its colleges.

Mr Waldegrave failed however to answer questions as to why the polytechnic's teacher education courses should close when met practically all the Department of Education and Science criteria for continuing courses, and was one of the most cost-effective institutions.

A decision was being taken this week on the future of City of Liverpool College. The council was meeting to decide whether it should merge with Liverpool Polytechnic, as recommended by the city's policy and finance committee.

Two previous proposals for a merger put forward by a working party and discussed at an education committee were defeated.

Funding selectivity vital: Chilves

Britain must be selective in research and development funding because the national budget is relatively small, according to Sir Henry Chilver, chairman of the Advisory Council for Applied Research and Development.

Speaking to the Parliamentary and Scientific Committee this week, Sir Henry said that our expenditure on research and development was comparable with other industrialized countries as a percentage of gross national product, but was still small in absolute terms. To make the best use of the money available, Britain had to emulate the best features of research organization elsewhere, and ACARD would be using the new, tighter, government advisory structure in science and technology to put this message across.

Sir Henry, who is also vice chancellor of Cranfield Institute of Technology, identified seven key features of successful research and development systems: research on an effective scale in selective areas; enough money for development after basic research; researchers have strong links with industry; applied research and development is directed toward international markets; private industry carries out a large share of research; steps to encourage civil "spin-off" from defence research; use of imported science in technology in industry and commerce.

Sir Henry said ACARD's study group on links between universities and industry, due to report early next summer, would make recommendations designed to improve both the flow of ideas from higher education and the flow of people.

£30m set aside for 'new blood'

continued from front page

UGC argued strongly for some in other disciplines.

The ARBC said in its report that 170 posts were the minimum needed by the natural sciences

Sir Keith said he accepted the ABRC's advice to cut the Agricultural Research Council, which the council has strongly resisted.

He also conceded that the rejection of applications to fund high quality research across all five research councils was a cause for concern, although he indicated that this might not be new. He invited the ARBC to provide more details of how first class research was suffering although the letter emphasized that there was no promise of any more money.

Leader, back page

Campus unions aim at common strategy

Unions representing all university staff are aiming at a common pay strategy covering lecturers, clerical technical and manual staff.

A number of key points have been agreed including submitting claims simultaneously establishing of a standing committee to coordinate overall strategy and possible industrial action, and a common core claim for next year to restore living standards, reduce working hours and provide special protection for low-paid workers.

The National and Local Government Officers' Association universities group this week endorsed the strategy and other unions are also falling into line. The Association of University Teachers, which is likely to face the greatest difficulty reconciling the approach with members' interests, is to draw up its salary policy today.

Although no decisions have been taken, Nalgo is likely to press for an increase of about 13 per cent for next year – with a probable £90 a week minimum for clerical and secretarial staff above the bottom grade.

● University computer staff have been awarded a 6 per cent increase from July 1 in an arbitration finding which completes the 1982 salary round. The unions had claimed 12 per cent but were offered 4 per cent for qualified staff and 3 per cent for trainees.

No university workers have settled within the 4 per cent cash limit and ministers have refused vice chancellors' pleas for extra money to ease the shortfall.

Overseas continued

HEDLAND COLLEGE
WESTERN AUSTRALIA
Head of School (Trades and Engineering) Lecturing Staff

The college recently advertised for a Head of School, Trade Lecturers in metal construction and the electrical trades and for engineering lecturers. The director of the college will be visiting the UK to conduct interviews in early January. Persons interested in any of the vacant positions may obtain further information and application forms from the office of the Agent General for Western Australia, Western Australia House, 115 Strand, London WC2R 0AJ, phone 01-240 2881. Applications must be forwarded on the appropriate form to the Agent General, to arrive no later than January 4.

Details on salaries and conditions are contained in the briefs available from the Agent General. Lecturing staff will be appointed to one of the following ranges.

A$12,695–22,546, $17,278–24,560, with the possibility of movement to $19,552–26,975 (Trades).

A$17,278–24,560, $19,552–26,975, $27,531–29,759, $30,451–32,542 (Engineering).

The Head of School range is $34,717–37,735.

Previous applicants need not re-apply. Applicants for lecturing positions who have not had teaching experience or qualifications appropriate to the position should not apply

Come clean over tenure, AUT tells v-cs

by David Jobbins

Vice chancellors opposed to plans to weaken academic tenure should come out into the open about it, the president of the university lecturers' union said this week.

Opening the winter council of the Association of University Teachers in Bradford yesterday Mr Steve Ruhemann accused monsters of "bludgeoning" the vice chancellors' committee into putting forward a scheme which sought virtually to "decasualize" the academic labour market.

"To their credit a number of vice chancellors are resisting the implementation of this scheme. But it is time that these 'saints' stood up to be counted for . . . the 'sinners' – who appear to be more numerous – are proceeding with as much expedition as they can muster to devise strategies for its imposition."

Mr Ruhemann also laid down the union's terms for accepting the proposals for injecting "new blood" into the university system. "The creation of some 600 new posts is to be welcomed provided they are properly tenured, that continuing resources are made available to sustain them, and that the autonomy of universities is not seriously compromised by the manner in which they are allocated and filled."

The council comes at a key point in the union's fight to defeat plans for compulsory redundancies at Aston University.

Mr Ruhemann admitted it would be the AUT's "immediate and very severe test" and warned that chances of future survival would be gravely damaged by failure to act skilfully and resolutely.

The union calculates that about 3,000 academic and academic-related jobs have been lost so far, and Mr Ruhemann pointed out that substantial further losses were threatened.

"Devastating as this is, it has at least been effected so far entirely by voluntary means – though it must be acknowledged that some of the volunteers have been less than eager."

He said the union was entitled to be proud of its achievement in resisting so far attempts to sack academics at many universities "both those with genuinely serious financial difficulties and those where vice chancellors have sought to exploit the situation to their own advantage".

But he left council in no doubt of the union's ultimate enemy. "We are confronted by a government of extraordinary ruthlessness which is totally untrammelled by the traditional respect of the establishment for the values and role of the universities."

The council is due to draw up its salaries policy for 1983 today in the face of the Government's 3.5 per cent cash limit for next year's salary settlements.

Union leaders fear that university staff may be left as one of the few public sector groups of employees exposed to the full force of the Government's rigid enforcement of cash limits.

Application of cash limits in past pay rounds have led to new anomalies in the relationship between university and public sector higher education pay, according to the union. It calculates that a 3 per cent increase in salaries is needed to restore relativities at the traditional point of comparison between the maximum of the further education senior lecturer scale and the university lecturer maximum.

They say they should have received a 22 per cent increase last April to restore salaries to their October 1979 level – instead of the 5 per cent eventually awarded. And arguments that falling inflation rates compensate for lost purchasing power are rejected by the union executive.

● The teachers' panel of the Burnham further education committee meets on Monday to finalize the college and polytechnic lecturers' pay claim for 1983.

Unions team up to plan campaigns

A national committee which will bring together all trade union members working in post-school education be established soon.

Encouraged by the success of the Universities' National Joint Union Committee, officials from key unions representing teaching, white collar and manual staff are inviting other unions with polytechnic and college staff members to explore the plan.

The driving force has come from unions like the National and local Government Officers' Association, the National Union of Public Employees and the National Union of Students, who are represented on the UNJUC, together with the National Association of Teachers in Further and Higher Education.

Natfhe's assistant secretary for higher education, Ms Jean Bocock, said: "It would provide a focal point to which individual unions could present their plans for campaigns."

Principal wants extra students

by Olga Wojtas
Scottish Correspondent

The principal of Glasgow University has called for a bigger student intake even though this would worsen staff student ratios.

Dr Alwyn Williams told the university's general council that imposing a reduction in student numbers to match cuts in income safeguarded academic standards in the long term, since to diminish student costs would lead to less well-trained students.

"But these are exceptional times, when the peak of demand for university places coincides with unacceptably high levels of unemployment among the young," said Dr Williams.

"I feel sure my colleagues would accept, as a temporary measure, some relaxation in the restriction of intake of students."

The loss of opportunity for school-leavers as a result of intake restrictions was "easily the most frightful problem confronting this or any other country", said the principal.

Dr Williams: 'frightful problem'

It was thought in the late 1970s that a steady increase in demand for degree courses would moderate the decline in the number of school-leavers. In fact, there had been some disenchantment with further and higher education.

But as a result of the lack of jobs for school-leavers and growing awareness that the specialist knowledge, literacy and numeracy which went with degrees greatly increased opportunities in the labour market, the trend had been suddenly reversed.

At Glasgow, the number of applicants for 2,300 places this session exceeded 15,700, a 25 per cent increase on 1980, he said.

"Certainly if the alternative to university education is the dole queue, the cost of supplementary benefit is less than the full maintenance award. But in Glasgow and elsewhere in Scotland only one third of students are eligible for full awards. I am left wondering whether the total subsidies which students receive from their parents is greater than the difference between the actual bill for awards and an equal number of supplementary benefits," he said.

Completion rates for PhDs up

by Paul Flather

The rate at which social science graduates complete their degrees is improving, but university departments with low submission rates still face disciplinary action by the Social Science Research Council.

Confidential figures presented to the SSRC postgraduate training board this week show that one in six (16.4 per cent) of graduates had submitted their theses within three and a half years of starting.

This compares with one in seven (13.5 per cent) of those who started work in 1977 and one in ten of those starting in 1976. The figures for doctoral students show that one in six of those starting in 1978 have submitted within three and half years, compared to one in nine starting in 1977 and one in 20 starting in 1976.

This is the first time the SSRC has compiled a full survey of completion rates, and follows widespread concern over the past 18 months that public funds were perhaps not being properly used if students took six, seven, or eight years to complete a degree.

One early survey revealed that three out of five social science students had not submitted a thesis six years after starting work, and statistics confirmed that social science students were markedly slower than natural science students in completion.

A report on postgraduate training by a committee headed by Sir Peter Swinnerton-Dyer (HMSO 8537) last April called for tougher sanctions on institutions which failed to improve low completion rates, including regular progress reports on students and annual surveys.

The SSRC's training committee drew no conclusion from the statistics, but the completion rates of all university departments between 1973 and 1978 will be one factor in decisions about the allocation of SSRC "quota" awards next year.

The SSRC is preparing a review of its current quota awards – which are linked to specific university departments. Mr Michael Posner, the SSRC chairman, has indicated that recalcitrant departments with low rates could lose quota awards.

The SSRC accepts that it would be unfair to penalize whole institutions when the fault might lie with individual departments. The new statistics, however, cover only institutions – and those with low rates include Birmingham, Essex, Leicester, Liverpool, the London School of Economic, Reading and York.

All had 10 or more students starting in 1978 and so far submissions have not exceeded 10 per cent. A precise league table is impossible to provide given the wide variations of students involved, for example one at Salford University to 62 at LSE, 55 at Oxford and 38 at Cambridge.

Institutions with good rates include: Bath, Belfast, Cardiff, Henley the Management College, Keele, Bedford, Chelsea and Wye colleges of London University, Loughborough, the University of Manchester Institute of Science and Technology, Surrey and Trent Polytechnic, where more than one in three (30 per cent) of students had submitted their theses within four years.

But in some cases the number involved is small while Manchester University with 31 students did well to have nine students submitting work by last September.

Overall 821 students were registered in the social sciences in polytechnics and universities in 1978, of which 134 (16.4 per cent) have submitted their theses, and 56 (68.9 per cent) are still registered. One in seven (14.7 per cent) have withdrawn.

There are many arguments against over emphasizing the speed of completion, particularly when students become involved in writing books or training. But completion rates will be one factor in future distribution of SSRC awards.

The SSRC is also preparing a discussion document on reforms to the PhD syllabus which will probably be circulated early in the new year.

Poly rejects industry's criticism

The director of North Staffs Polytechnic has denied allegations that it ran down a course which was suited to the needs of Britain's pottery industry.

Sir Arthur Bryan, chairman of Wedgwood, suggested recently that the polytechnic was failing to meet industry's needs. He said it was not providing a course which led to a BSc in ceramic technology and combined the science of ceramics with information about industrial process and some business management.

The degree course has not run for three years. But Dr Frank Dickenson, the polytechnic's director, blamed the course's collapse on the industry's decline during the recession. This has caused employment prospects to halve in the country's main pottery region.

"The industry has been severely knocked and the polytechnic has felt the effect," said Dr Dickenson. He doubted the course would be run again, as there were not enough applicants.

The degree course attracts privately-funded students. A range of other courses related to the pottery industry have continued at reduced levels.

The polytechnic had also recently approached Wedgwood to discuss updating the course. North Staffs is one of two institutions which provides specialized training for ceramic technicians.

The polytechnic's board of governors has agreed a potential saving cut of 17 per cent for the National Advisory Body's planning exercise. Half would be met by closing the Madeley site which houses the teacher education faculty and the rest by staff cuts. This would take the polytechnic beyond a 14:1 staff-student ratio for non-laboratory-based courses.

Research cashes in on space

by Jon Turney
Science Correspondent

The Department of Industry has approved a national programme of research and development in remote sensing, which will encourage the Government, industry and the research councils to make use of satellite data. The programme committee held its first meeting this month and a coordinator for the programme will be appointed early next year.

The programme will build on existing work of the Science and Engineering Research Council, the Natural Environment Research Council, the Ministry of Defence and the Dol, all of which are represented on the committee, to prepare for the launch of the European Space Agency's ocean and ice survey satellite ERS-1 in 1987.

The programme will plan experiments to demonstrate the possible commercial applications of satellite observations. The aerospace companies Logica, British Aerospace and Marconi are also represented on the programme's committee.

The national programme may offer a model for future moves to bring together the research councils, industry and government departments. A similar arrangement has been proposed for the initiative in advanced computer research the Dol is expected to unveil next year.

University interests will be in the hands of the two research councils on the programme committee. Both the NERC and the SERC were recommended to give priority to remote sensing by the Advisory Board for the Research Councils in its forward look published in October, and the SERC already spends £1m a year in the field. University departments and research council institutes can expect to attract contract research from the Dol and aerospace and electronics companies as the programme develops.

Broadly, the SERC is concerned with improving instruments for acquiring data on board satellites and receiving it on the ground, and the NERC will continue to concentrate on analysis and interpretation of data when it has been sent back. The Royal Aircraft Establishment in Farnborough will also be involved in the work and the programme committee's first meeting was largely devoted to a review of the RAE's existing national remote sensing centre.

The choice of director for the new programme will be crucial, and it is likely that the companies most closely involved will be invited to nominate candidates by the Dol. The person appointed will probably work inside the department on secondment from the chosen company.

The NERC and SERC have also announced their support for a new one-year MSc course in remote sensing, to be run jointly by University College London and Imperial College from next October. The SERC indicated last week that the course would cover both technical aspects of satellite instruments and their applications in location of resources, environmental monitoring, hydrology, crop protection, oceanography and meteorology.

Rediffusion switches on to learning

by Karen Gold

One of the largest likely bidders for a cable television franchise is considering proposals for an educational channel which would broadcast for 70 hours over five days a week by 1985. Rediffusion, which has television production and rental interests, has commissioned a feasibility study of potential producers and investors. The new channel would be supplied free to households which bought a cable system on top of the various paid for entertainment and local channels.

University and polytechnic television departments are understood to be particularly interested in the plans. Their involvement would increase their audiences and prestige considerably, according to Mr Keith Yeomans, the educational broadcast consultant carrying out the study.

Television companies, local education authorities and educational publishers are also being canvassed for their interest in an initial output of mostly existing programmes for all levels from pre-school children to adults.

The programmes would be formal education rather than leisure-oriented, and would exclude more commercial areas – such as foreign languages for business – which would be on other channels for an additional fee.

Mr Yeomans is also investigating funding mechanisms such as commercial and public sponsorship, either for specific programmes or a programme-making pool, and the market for overseas sales. Later on a specially established organization could take programmes as well as buy them, Mr Yeomans said.

Rediffusion too is interested in investing or sharing the channel with other operators, according to Mr Nicholas Mellersh, the programming director for Rediffusion Consumer Electronics. However, the company would only became involved in cable provided it received a substantial share of the franchises.

"There is no point in just operating one franchise," Mr Mellersh said.

SCIENCE MUSEUM PHOTO: CROWN COPYRIGHT

A replica of the core of the British advanced gas cooled reactor is on show in the nuclear physics and nuclear power gallery at the Science Museum in London.

The gallery, which was unveiled by Sir Alan Cottrell, master of Jesus College, Cambridge, also includes numerous illustrations of the history of nuclear physics, and displays on the fast breeder reactor and fusion power.

Surrey makes an informed choice

Surrey University is to have a new chair in information technology sponsored by Racal Electronics and the Department of Industry. The chair, announced by the Prime Minister, Mrs Margaret Thatcher, in her opening address to the Information Technology '82 conference in London, will be backed by an index-linked fund providing around £35,000 a year for seven years.

Racal already has close links with Surrey's department of electronic and electrical engineering.

Italian courses lose 33% staff

The loss of almost a third of the most senior posts in departments of Italian shows how bad the effect of spending cuts is, according to a new survey.

The survey was made by Professor Conor Fahy, head of Italian at Birkbeck College, London, and president of the Italian Society. He says the number of chairs of Italian is likely to drop from 16 to 11 in the next few years and this, coupled with the premature retirement of four senior lecturers, will mean a "serious diminution in senior Italian posts throughout the country".

Among the institutions causing concern are : Glasgow, whose professor is taking early retirement next year; Leeds where the chair is to be frozen in 1985 and the department may merge with that of French; and Reading where the chair and one lectureship are frozen. Also badly hit are Bangor, Liverpool and Birmingham universities and Sheffield Polytechnic.

London University is also giving cause for concern Professor Fahy says. Its three chairs of Italian may be down to one by next year. A working party is looking at the implications of the coming merger between Bedford College and Royal Holloway College on the teaching of Italian.

Cranfield links with airline

Practical classes for students at Cranfield's College of Aeronautics could soon include work with a local airline if a route licence for a new company is granted next year.

Connectair has been formed by Robert Wright, a former Cranfield business student, and will run a link to Heathrow from its base at Cranfield, Bedfordshire. The service, due to start in April, is aimed at businessmen using Milton Keynes.

John Trevett, of Cranfield's air transport group hopes the college will provide servicing facilities, maintenance and operational assistance. He also hopes the new route will offer training opportunities for potential airline managers, whose studies are now largely restricted to theory.

The College of Aeronautics and the School of Management – both within Cranfield Institute of Technology – have both helped with operational studies for Connectair, and students and teachers at Cranfield have experience with similar ventures elsewhere.

One previous study produced a model for a commuter airline which was later put into practice in Oregon, but the British venture will offer the first opportunity for direct student contact with a working airline.

Cambridge overseas student numbers up

by Paul Flather

Strenuous efforts involving the Prince of Wales, Mrs Indira Gandhi, and the Chinese education ministry, have ensured that the number of overseas students at Cambridge University are well up on last year despite the full-cost fees.

Figures in the latest edition of the university's *Reporter* show that 174 undergraduate and 276 graduate overseas students were admitted last October, compared with 119 undergraduates and 235 graduates in October 1981.

After a limited fall when the higher fees came into effect in 1980, Cambridge is now attracting far more overseas students than before, largely because of greater publicity and an extensive new programme of bursaries and overseas scholarships.

The 1982–83 programme, masterminded by the committee on awards for overseas students and chaired by Mrs Jean Floud, principal of Newnham College, has to date involved a total of 110 bursaries, covering part of the fees, at a cost of £158,000, plus 17 full-cost scholarships.

The most significant move has been the establishment of the Cambridge Commonwealth Trust, chaired by the Prince of Wales, and able to support all existing Commonwealth commitments as well as fostering new ones.

The trust will have links with the newly created Friends of Cambridge University in Hongkong, the Cambridge Livingstone Trust covering southern Africa, and the new Cambridge Nehru Trust covering India, with Mrs Gandhi the prime minister, as patron.

Another scheme named after the philosopher poet Muhammed Iqbal covering Pakistan is being developed, and an initial scheme covering part costs has been agreed with China. Talks with the US and Japan are continuing, and schemes covering a host of countries including Sudan, Mauritius, Ghana, and Sri Lanka are being prepared or on trial.

The total numbers of overseas students at Cambridge at undergraduate level has gone up from 292 to 345 from 1981 to 1982, and at graduate level from 460 to 496. This amounts to 3.6 per cent of the total undergraduate student population, and 26.4 per cent of the graduate total.

Oxford has not given the issue as much priority, and its overseas student intake has been maintained at a level slightly lower than its peak reached in 1978, just before the full cost fees were introduced.

Computers on special offer

Teacher training colleges are to be offered a £1m microcomputer package under a Department of Industry scheme launched this week to boost prospective teachers' knowledge and expertise.

The scheme announced by Mr Kenneth Baker, minister for information technology has two elements. The first, in line with the Micros in Schools project will ensure that every college receives a basic set of equipment worth around £5,000.

Institutions are to be given the choice of three models all currently installed in schools, the Research Machines 480Z, the BBC Acorn model and the Sinclair Spectrum, each of which will come with the Micro Vitec colour monitor.

Second, colleges were being invited this week to bid for further funds of up to £15,000 to purchase equipment, including software and peripheral devices which will enable them to develop technological expertise among trainee teachers.

Applications are to be assessed by the DoI in conjunction with Department of Education and Science.

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Overseas continued

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North American news

Culprits are under Government's nose

from Peter David

WASHINGTON

The United States is stepping up a campaign to retrieve more than $1,000m it is owned by former students who have not repaid their government loans. The government's latest target is its own employees.

Over the next few weeks nearly 47,000 federal civil servants will received letters from the Department of Education warning that they have been identified as student loan defaulters and giving them 60 days to arrange to repay their debts.

If they refuse, the civil servants will find their salaries reduced by 15 per cent until the government has recouped its loans. In addition, the names of the defaulters may be given to national credit bureaux, thereby jeopardizing their credit-worthiness.

Mr Terrell Bell, the secretary of education, said last week that the letters were being mailed after an elaborate exercise in which the department had used a computer to compare a list of 10 million present and former federal employees against a list of all the people who had failed to repay student loans.

As a result, the department had been able to identify nearly 47,000 loan delinquents who were still employed by the federal government or had retired. They included 17,000 active civil servants, 15,000 military employees, and large numbers of military reservists.

In the education department itself, 67 officials were identified as loan defaulters. The total debt by civil service employees amounted to $68m.

The government obtained powers to dock the salaries of the delinquent employees in a new debt collection act pushed through Congress by Senator Charles Percy. At a press conference, Senator Percy applauded the department's action and said the civil servants involved were "deadbeats".

He continued: "The fact that there are 46,000 federal employees in default of nearly $68m in student loans is the most shocking story to unfold in the continuing story of poor debt collection.

"These 46,000 employees have had their good lives made possible by the generosity of the American taxpayer. Now, these employees have disregarded their obligation to repay their loans," he added.

The Department of Education has, under the Reagan administration, made the pursuit of loan defaulters a central priority in its financial aid programmes. Its move against federal employees is the latest of a number of new debt collection strategies.

Others include hiring private collection agencies and cutting loan funds for universities with poor collection records. A study commissioned by the Department of Education has estimated that it is costing the government one dollar to collect every three it is owed.

Higher education associations have in general welcomed efforts to improve the rate of loan repayments. Federal loans schemes are regarded as crucial sources of income by most institutions and many fear that delinquent borrowers are discrediting a system which the Reagan administration would like to reduce in size.

Some new measure have however led to protests by higher education institutions. The Federation of Associations of Schools of the Health professions this month criticized a demand that its institutions keep delinquency rates on student loans bellow 5 per cent.

The demand is being made by the Department of Health and Human Services and would remove colleges with higher delinquency rates from the Health Professions Student Loan (HPSL) programme which it administers. The department is owed more than $11m.

But the federation says a 95 per cent collection rate is unrealistic and would force two thirds of the participating colleges out of the programme. It argues that many poorer students would be priced out of medical or health-related careers.

Bell: sent letters to defaulters

Malaysians flock into colleges

by our North American Editor

Malaysian students, traditionally one of the biggest groups of foreigners at British universities, flocked to the United States in record numbers this years. Their numbers increased by 55 per cent in a single year to 9,420.

There were also increases in the number of students from Nigeria and Cyprus, traditional suppliers of students for Britain, but a reduction in students from Hongkong. The number of British students on American campuses increased sharply by nearly a quarter to 5,540.

Experts at the Institute of International Education in New York, which compiles statistics on overseas students every year, said this year's survey contained little evidence that Britain's policy of ending subsidies for overseas students had contributed to a significant influx to the United States.

The number of Nigerians grew by more than 12 per cent to just under 20,000, making Nigeria the third biggest source of foreign students in America. But the rate of increase was not unusually rapid and had shown bigger fluctuations in the past.

Hongkong contributed only 8,990 students this year compared with 9,660 in 1981.

Mr Wallace Edgerton, president of the institute, said that foreign student enrolment nevertheless continued to be one of the few growth areas in American higher education. In 1982, 326,299 foreign students were enrolled on 2,454 campuses.

The 1982 figure represented a 6 per cent gain over 1981, a slower rate of growth than occurred in the previous six years. Mr Edgerton attributed the smaller increase to the decline in Iranian students from 47,550 in 1981 to 35,860 in 1982.

Iran was still the biggest supplier, however, followed by Taiwan (20,520); Nigeria (19,560) Canada (14,950); Japan (14,020) and Venezuela (13,960). Foreign students made up 2.6 per cent of the student population of more than 12 million.

Mr Edgerton said that most of the increase in foreign student numbers this year came from outside the Middle East, with the numbers from Saudi Arabia, Libya and Algeria falling slightly. Students from Middle East OPEC nations were 29 per cent of all foreign students in 1982, a decrease from 33 per cent last year.

"If this pattern continues it may indicate that the enormous expansion of foreign student numbers fuelled by petrodollars has reached a plateau in the oil glut of the early 1980s – at least as far as Middle East nations are concerned," he said.

He noted, however, that OPEC nations from outside the Middle East represented a growing source of students. Students from Nigeria, Venezuela, Indonesia and Ecuador accounted for 41 per cent of OPEC students, an increase of 33 per cent since 1981.

Mr Edgerton criticized the distribution of donor countries, pointing out that poorer countries which could benefit most from sending students overseas were under-represented in the survey.

Some 27 third world countries (13 OPEC members, 9 regional economic powers and 5 populous Asian nations) account for about 190,000 foreign students in the United States. The remaining 127 nations in the third world send only 75,000 students, an average of less than 1,000 per country.

Nigeria provided as many students as all the remaining African states combined. Mexico provided half of all the students from Central America and Taiwan more than all the countries in South Asia, including India, Pakistan and Bangladesh.

The US government maintains an open-door policy towards overseas students, and expert committees have in recent years predicted a continuing growth in their numbers over the next decade.

Science and engineering stops growing

Nearly a decade of steady growth in science and engineering in American universities reached an abrupt end last year with a reduction of nearly 4 per cent in constant dollars, according to a National Science Foundation survey of academic science.

University research and development budgets grew in constant dollars by 11 per cent a year from 1972 to 1980, reaching a peak of $6,000m from all sources. Estimates for 1981, however, indicate a decline of nearly 4 per cent.

The downturn in spending is one of a number of trends highlighted in the detailed study. Others are a rapid increase in the amount of research funded by industry; a big increase in the proportion of women postgraduates; and huge growth in the proportion of foreign students in engineering, maths and computer science departments.

Higher education institutions employed 325,000 scientists and engineers in 1980 and accounted for a tenth of all research and development spending in the United States, the survey indicates. Life scientists were the biggest single group, accounting for 40 per cent of those employed.

Although there are some 3,000 universities and colleges, the bulk of science and engineering research was concentrated in just over 320 institutions with doctoral programmes. They consumed 97 per cent of academic research and development funds and employed 67 per cent of the scientists and engineers.

Between 1977 and 1979 there was a spurt in industrial sponsorship of academic research, which grew at a rate of 10 per cent a year. But the federal government remained by far the major sponsor. Industrial firms by 1979 still contributed only about 4 per cent of total university research budgets.

US industry is funding more and more university research

Universities played the dominant role in national spending on basic as opposed to applied research. About half the money dedicated to basic research was spent by universities, with the federal government and industry making up the remainder.

But the report points out that basic research fared less well than applied research in the decade, with most increased spending almost entirely erased by the effects of inflation. University basic research grew by only 1 per cent in real terms compared with an increase in applied research of 7 per cent.

Falling student enrolments in higher education have increased financial strains on universities and made it impossible for higher education to recruit science and engineering staff at the same rate as government and industry, the report indicates.

But while the second half of the 1970s saw a big drop in the number on non-science postgraduates, the number of science and engineering students continued to grow and now account for around a third of all postgraduates.

Women made up a third of science and engineering postgraduates in 1980, compared with a quarter five years earlier.

Research 'must have steady funds'

Steady funding for scientific research, protected from upswings and downturns in the economy, is essential to the success of long-term projects which may be risky but often result in huge payoffs.

That was the message delivered to the Congress last week by spokesmen for two of America's leading private sector research organizations, Bell Telephone Laboratories and the Battelle Memorial Laboratories.

Dr Katar Patel, a vice-president for Bell, said the company's laboratories had an unparalleled record of achievements, including the invention of the transistor, the original conception of the laser and fundamental discoveries in information theory. Seven Bell employees had received Nobel prizes, and the parent companies spent $156m a year on research.

Over the years, Bell had learned the importance of sustained research funding. It had also learned the importance of giving scientists freedom to select their own priorities within broad subject guidelines, Dr Patel said.

"Attempts by governments to legislate a timetable for scientific and technological progress have almost always failed. Scientific discoveries cannot be legislated," he said.

Dr Patel was speaking at special hearings by Congress on setting priorities for spending on research and development. University witnesses testified last September.

Another witness, Dr Ronald Paul, president of the Battelle Institute, said the federal government had to make long-term commitments to a few areas of science which demanded very expensive equipment and facilities, such as the study of atomic and subatomic particles or space exploration.

The return of the native

Dr David Saxon, who retires as president of the University of California next July, is to become chairman of the board of trustees of the Massachusetts Institute of Technology, where he was a physics student 40 years ago.

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Birth fall won't affect student numbers

The widely forecast drop in student numbers as people born during the 1950s baby boom outgrow college age may never materialize in the United States, according to a demographic study published by the Department of Education.

During the next decade, the number of college-age Americans is expected to drop by 15 per cent. But the National Centre for Education Statistics says student numbers are unlikely to dip below the 1980 level of just over 12 million.

The NCES projections assume that poor unemployment prospects will make a larger proportion of teenagers opt for higher education. At the same time, increased enrolment of older students is expected, by the middle and late 1980s, to offset declines in the recruitment of younger students as the economy improves.

High unemployment among young people may edge total student numbers toward a record high of 12.6 million this year, the study suggests. Enrolments are then likely to decrease to 12.2 million in 1985 and remain more or less steady until 1990.

The optimism of these forecasts is based on a belief that current trends towards an older student body and a higher proportion of part-timers will accelerate during the decade.

By 1990, mature students are expected to account for 47 per cent of the total, compared with 38 per cent in 1980. Part-timers, who accounted for 41 per cent of the student body in 1980, are expected to reach 46 per cent by 1990.

But the study warns that there are many unpredictable factors which could lead to quite different developments. The performance of the economy and the availability of grants and loans are among the most important unknowns.

Like the projections published by Britain's Department of Education and Science, therefore, the study also plots alternative high and low projections.

Overseas news

Study predicts student boom

from Geoff Maslen

MELBOURNE

Australia can expect a massive increase in the number of young people going on to higher education in the next five years without recourse to the special measures promised by the Government to boost participation rates.

This is the conclusion of a big study carried out by Professor David Beswick, of Melbourne University's Centre for the Study of Higher Education. He expects to see an increase of the order of 20 to 30 per cent by 1988, a large enough change to have noticeable effects on the higher education system.

Professor Beswick believes a quarter of the rise will come from population increases in the 15 to 19-year-old age group, projected to grow by about 6 per cent between 1983 and 1988.

Another quarter should come from a recovery in the rate of students going on to further study, due to improvements in student financial assistance. This would probably be coupled with changes in the perceived benefits of higher education as graduates gain in a tight labour market, as well as changes in government policy on employment and training for young people. Professor Beswick expects half the increase should result from 17 and 18-year-olds carrying through an already increasing rate of participation in school for 15 and 16-year-olds.

He believes the carry-through should occur for several reasons. The apprenticeship boom is coming to an end so fewer boys will leave secondary school early; the government will be forced to develop a more comprehensive youth training policy which should include an attempt to encourage more staying on at school; the present provision of unemployment benefits for early school leavers may be changed.

Professor Beswick believes that as the children of the young people who stayed on at school in 1950s to the 1960s start to move through the secondary system in the late 1980s, their parents will encourage them more often to continue further studies.

His comments – made at a recent conference at the Australian National University – contrast with the findings of a Commonwealth study released last month. This showed there had been a marked decline between 1975 and 1981 in the number of young people going on to higher education.

Particularly significant, however, is Professor Beswick's belief that the Commonwealth will be obliged to increase its financial assistance to students. As the author of a yet-to-be released repri, he has evaluated the federal tertiary education assistance scheme.

The evaluation study – expected to be released later this month – was primarily concerned with the effectiveness and role of student financial assistance for those entering and staying on in higher education.

The report is believed to state that financial factors play a big part when students decide whether to go on to further study or to continue in a higher education course. A survey which sampled more than 2,700 twelfth year school students from Victoria and Western Australia found that more than one in four students who hoped to go on to further education expected to have big problems paying the costs involved.

A survey of students who had dropped out of their tertiary studies found that 30 per cent said they withdrew because they could not afford to continue.

The study found that, in general, the factors which appeared to be most important in predicting whether a student would go on to higher education were, in descending order of importance:

- Positive parental encouragement to undertake further studies;
- Better twelfth year examination results;
- Higher occupational aspirations;
- A tendency to do mainly science and mathematics courses;
- Positive teacher encouragement to undertake tertiary education;
- Not anticipating a financial problem in undertaking full-time higher education.

Students who did not go on to college or university and who said that financial reasons were important in making the decision, were also likely to have had significantly lower levels of parental encouragement.

Professor Beswick says that while he is certain to be wrong in some of his predictions, one way or another the downturn in the participation of Australian young people in higher education is bound to be recognized as an anomaly.

Young people will start flooding back to Australia's universities

University to teach sea skills

by Thomas Land

MALMÖ

The world's first university to provide specialist training for senior maritime administrators in the developing countries is to open shortly under the auspices of the United Nations in this Scandinavian seaport. It is intended to contribute to global efforts to reduce marine pollution.

The new World Maritime University will be based at the present Malmö Merchant Marine Academy, whose activities are gradually being phased out. The local authorities are also to provide accommodation and social facilities for students.

Malmö, the capital of Sweden's Malmöhus county, once belonged to Denmark. Appropriately, it is an important seaport and shipbuilding centre. The bulk of the new university's academic work will take place in the city, but students will also visit fellow institutions elsewhere in Scandinavia and in other European countries for special courses.

An agreement on the provision of facilities for the new university has just been signed by Nils Yngvesson of the municipality of Malmö and C. P. Srivastava, secretary-general of the UN's International Maritime Organization (IMO). Professor Solve Arvedson, head of the Malmö Merchant Marine Academy, was sworn in as the university's first rector.

An IMO specialist explained: "The aim of the university is to provide advanced training for maritime administrators, surveyors and inspectors, accident investigators, maritime lecturers and others holding key positions in the developing countries.

"Although there are many training schools at national and regional levels for cadets and sea-going officers in various developing countries, there are still no facilities providing training in these advanced levels of expertise. Yet the success of current efforts to improve shipping safety and prevent marine pollution from ships depend to a considerable extent on the efficiency of maritime administrators all over the world."

The new university will receive its first students – at least 100 – on July 1. Most degree courses will take two years; but the university will also offer a wide range of other specialist courses, some of them lasting only a few weeks.

Bare bones of the Irish cuts

from John Walshe

DUBLIN

The president of University College, Galway pleaded with the government not to cut back on university spending any further at the college's recent conferring ceremony.

Dr Colm O'hEocha (above) is sometimes seen as the unofficial spokesman for the five university heads in the Irish Republic.

In an unusually blunt statement he said: "When we are told by politicians that we must slim down we must point out that our bones can clearly be seen without the benefit of an X-ray machine." This was particularly the case in areas such as engineering and applied sciences where the college had initiated many new programmes at the government's request in 1979, he claimed.

The president said that the ratio of teaching staff to students of one to more than 18 was worse than in many secondary schools in the country. Ireland, he pointed out, was at or near the bottom of the league of spenders on research in the European community.

Dr O'hEocha also criticized the economic plan just published by the government. *The Way Forward* covered all sections of the economy, but there was only a brief reference to the role of the universities in industrial development, he said.

The Way Forward became Fianna Fail's election manifesto when it was turfed out of office and ushered in the third general election in 18 months.

A few days before the election, Fianna Fail published the book of estimates it had prepared for the next budget. Higher education, and universities in particular, were the targets for cuts. The estimates also provided for secondary school transport charges, slowing down recruitment of teachers in secondary schools and phasing out caretaker and secretarial worker schemes.

The proposed latest round of cuts comes at the end of a tough year for the universities, and to a lesser extent, other third level colleges.

All are affected by the extension of a general public services embargo on jobs in education areas. This means that two out of three vacancies must remain vacant. It affects non-teaching staff outside the universities and both teaching and non-academic staff in the universities.

However, with unemployment the main political concern, higher education cannot expect too much sympathy, or hard cash.

Lack of interest worries Chinese

New targets for higher education in China have been announced by premier Zhao Ziyang. By 1985 the university population will increase by 13.6 per cent to a total of 1.3 million students. There will also be a substantial growth of radio, television, correspondence and evening courses in higher education. Postgraduate education will have a more significant increase, with 20,000 students enrolled annually by 1985 – over five times the 1980 figure.

At the same time more attention will be paid to students' political education, which has taken a back seat since the excessive concentration on politics during the cultural revolution. The authorities are concerned at the lack of interest in anything outside the university campus; many students do not even read newspapers or listen to the news on the radio; few know the names of leading members of the government. They work very hard indeed at their books but have little interest in national politics or international affairs.

To correct this situation Mr Zhao told the National People's Congress: "Serious efforts will be made to strengthen systematic education of undergraduates and graduate students in the basic theories of marxism; they must be trained as workers with socialist consciousness as well as specialist and professional knowledge."

Confusion over Polish unions

The Socialist Association of Polish Students (SZSP) whose congress, last month, culminated in the foundation of a new Association of Polish Students (ZSP) has not, after all, been disbanded, according to ZSP chairman, Cezary Droszcz, a 29-year-old graduate from Poznan Technical University. This announcement will doubtless surprise most Polish students, who understood that the SZSP had simply been reorganized into the ZSP.

Droszcz, when intervied by the Katowice daily *Dziennik Zachodni*, explained that delegates to the SZSP congress, in response to "widespread demands" among students for a "more open and pluralistic organization", had voted to suspend the SZSP congress to enable a founding congress of the ZSP to take place.

Later, he said, the delegates had voted not for the dissolution of the SZSP, but simply in favour of accession to the ZSP. Therefore, he said, the SZSP still exists with, he claimed, "cells and members, in many higher education establishments".

Shortly before the SZSP congress, its governing council had issued a directive urging the dropping of the word "socialist" from the name. This, it was hoped, would attract back former members who left in the autumn of 1980 to set up the Solidarity-type Independent Students Association (NZS) and when the latter was banned in January 1982, had been unwilling to rejoin the party-orientated SZSP. What these directives envisaged was clearly a straightforward conversion of the SZSP into the new ZSP, which would be less overtly political.

The retention, after all, of the rump of the SZSP as what will now clearly be a cadre organization appears to be related to recent party calls for "intensive activity" in the universities to restore the party's credibility and authority in the academic milieu.

Freshmen win scholarships

from D. B. Udalagama

COLOMBO

A thousand and one freshmen out of approximately 5,500 admitted to universities for the new academic year have been awarded scholarships from the proceeds of a lottery organized by the Ministry of Trade and Shipping.

Of these a little more than 100 have been awarded purely on merit and the rest on the basis of merit plus the district from which they come.

Undergraduates are also eligible for loans of Rs 225 (£6) a month for ten months of the year from the two state-owned banks, the Bank of Ceylon and the People's Bank which makes the loans in alternate years. It seems doubtful, however, if bank loans will be available in the new academic year because the Treasury is reported to have declined to advance the money to the banks which asked it to bear the risk involved in students defaulting on repayments once they have obtained employment – the condition on which the banks give loans. Over Rs88m is reported to be outstanding out of Rs102.1m lent to undergraduates since the scheme began.

Some time ago the banks turned down a proposal by the Ministry of Higher Education to increase the loan from Rs225 to Rs300 a month as students default.

Primary boom discouraged

from Karl Gruber

VIENNA

In the light of poor employment prospects for newly trained teachers, which are about to turn into actual teacher unemployment, it would be tempting to see this autumn's 5.4 per cent drop in the enrolment at Austria's teacher training academies as a sign of healthy self-regulation.

However, most of the new students opted instead for the primary school teacher course with the poorest employment chances in the whole education service. The unexpected stampede into primary teaching (at certain institutions the increase was more than 50 per cent) seems to have been triggered off by a change in eductional legislation which will lengthen primary school teacher training from four to six semesters in 1985.

As there is no restriction as to a student's choice of studies in Austria all the Minister of Education can do is issue a warning and present discouraging statistics.

A recent ministerial survey has also revealed that almost a fifth of those beginning teacher training are university drop-outs who seem to prefer the intellectually less demanding atmosphere of the "academies" to the freedom and challenge of a university degree course.

Sandra Hempel examines the different effects the UGC cuts have had on UMIST and on Bath

Recovering from the shock

The University of Manchester Institute of Science and Technology is just emerging – or so everyone connected with it fervently hopes – from what the acting principal has described as the worst year in its history.

The blows dealt by the University Grants Committee and the rise in overseas student fees were bad enough. UMIST fared rather better at UGC hands than some of its technological counterparts such as Salford and Aston but still faced a combined cut of 20 per cent and the need to lose over 80 academic posts. At the end of 1981/82 it had a deficit of £47,000, the first for many years, with its income down by £350,000 and spending up by 7.5 per cent.

Worse, however, was to come and from a less predictable source than the UGC or the government. After weeks of bitter and public controversy last summer, a committee of inquiry found the principal, Professor Robert Haszeldine, personally responsible for overspending on furnishing a house bought by UMIST as a residence and possible conference venue. The original estimate of £82,000 was exceeded by £163,000. The committee also found that money was unreasonably removed from the chemistry department to the principal's research fund. Eleven full-time research staff paid with UGC money were reporting directly to Professor Haszeldine instead of to the professors of chemistry.

In August Professor Haszeldine announced he would take early retirement from the end of the year. His office was closed in September and in October his deputy, Professor Harold Hankins, was made acting principal.

Professor Hankins' first move was a literal one. He closed the new administrative offices and moved back into the somewhat shabby rooms used by Professor Haszeldine's predecessor, taking the registrar and bursar with him. He gave assurances that there would be no compulsory redundancies and that all available money would be spent on protecting academic activities. He also announced an open style of leadership under which he would keep everyone informed about developments and would be accessible to staff and students.

Professor Hankins likes to refer to what he calls the "earthiness" of UMIST. He believes there is a core of realism in the institution, born out of its origins in the practical and mechanical sciences and of northern pragmatism, which will see it through the crisis.

UMIST was set up in 1824 as the Mechanics Institute with the aim of educating the children of artisans in practical subjects. It became the faculty of technology of the University of Manchester in 1903, and received its own charter in 1956. It is funded separately but its staff and students are part of the University of Manchester and its degrees are University of Manchester degrees.

Occupying a site in central Manchester near to the polytechnic, the college of education, hospitals and an art gallery, it forms part of a 300-acre educational precinct which is the largest in Europe. The University of Manchester, known locally as "Owens", is just up the road. In fact the two institutions are referred to as "up the road" and "down the road" by those who work in them.

Approval for new UMIST courses has to come from the University of Manchester senate and, while many of the same departments exist at both institutions, the emphasis is different and there is care to see that work is not duplicated. Mechanical and natural sciences are among a number of joint departments and there are many joint courses.

UMIST is highly regarded in many parts of the world, partly because of the many former UMIST people heading departments and institutions overseas. It has always depended heavily on overseas students.

Such was its confidence in its international reputation that when the Government's new overseas fees policy came into operation, UMIST courses were £500 more expensive than other institutions. The confidence was misplaced. Applications immediately dropped by 30 per cent. "We thought we were immune but we weren't," Professor Hankins said. "We suffered badly."

The problem was made worse by the reliance on Malaysia as an important source of students. The Malaysian government reacted angrily against the new fees policy.

UMIST was forced to bring its fee down to the government minimum and to set about recruiting in many new areas. The result has been an increase of 20 per cent in overseas students this year. Now, however, the institution is determined not to be in such a vulnerable position again.

Professor Hankins thinks that the present balance of 3,000 home students and 700 overseas in about right. "If we get up to 1,000 foreign students then a political upheaval somewhere could cause us a lot of problems."

Progress has also been made on meeting the UGC cuts. The aim was to make 40 per cent of the savings needed in the first year, 40 per cent in the second and 20 per cent in the third. Already, however, an 80 per cent saving has been achieved, largely through job loss caused by natural wastage. The policy was to reach level funding within three years but the institute is already 50 per cent better off than it expected to be.

Encouraging us this is, Professor Hankins is concerned about balancing the national need for innovation and academic achievement with the need to balance the books. "An institution like UMIST must have elbow room to respond to initiatives."

UMIST already attracts a comparatively large amount of grant money from research councils, government agencies and industry. It currently gets £4.5m compared with the University of Manchester's total of £6m and Professor Hankins predicts that UMIST will be taking special initiatives in the future to satisfy both academic and financial needs.

Recent examples of this policy include two new chairs sponsored by industrial and commercial organizations. Management consultants Price Waterhouse are to provide the money needed to unfreeze a chair in accounting and finance while the Plessey group is to provide a completely new chair in industrial marketing.

The 18-month-old department of instrumentation and analytical science, believed to be the newest department in the country, has attracted £1m in research money since it began.

Other examples of cooperation with industry include the total technology scheme by which postgraduates earn their PhD's by combining traditional study with solving a specific problem within a company.

Most UMIST courses are traditional three-year courses but a new four-year degree in microelectronics systems engineering will start next October with industrial sponsorship.

One sign that despite past and future difficulties, UMIST was recovering from the shocks it received according to many members of the university, was the conviction with which staff and students rejected the recently proposed merger with Salford to form one large technological institution in the north-west.

The proposals was first put forward by a Manchester MP but was unanimously rejected by the UMIST council. It was seen as offering a lifeline to the hard-hit Salford at the expense of UMIST.

"In a way the incident was very constructive," said one member of the UMIST staff. "The whole place immediately closed ranks."

The historic links with "Owens", the shared health, welfare and social facilities with the university and the cohesion of a compact campus rather than one split between its present site and Salford, four miles away on the other side of the city, all contributed to the rejection of the plan.

When he announced the decision, Professor Hankins said that UMIST would instead develop further its links with the University of Manchester." But there can be no grandiose plan. Any further links with Manchester must happen at grass-roots level and must be for sound academic reasons."

He is convinced that UMIST has, as he puts it, turned the corner. "We have had these terrible problems and yet, looking back, we have still pulled in £4.5m for research, we have increased overseas students by 20 per cent and published 800 books and papers. I wonder what we shall do in a good year."

Professor Hankins: "We thought we were immune but we weren't"

The aim is for quality not quantity

Bath was one of the few universities in the country to do rather well out of the University Grants Committee last year. It was protected against the full impact of the spending cuts by suffering a drop in income of only 3 per cent during 1981/82 followed by two years of level funding and was told to maintain or increase student numbers in most subjects except pharmacy.

Everyone at Bath is at pains to stress that while relieved at the contents of the UGC letter, they had always been quietly confident that the excellence of their institution would be recognized. Nevertheless its inclusion in the UGC's favoured few, along with somewhat more established universities such as Oxford, Cambridge, Durham and Edinburgh, was not completely predictable to most outsiders.

With official blessings, not to mention hard cash, as vindication of Bath's present policies, there is little inclination to change the course that has been carefully steered over the past few years with its emphasis on a high proportion of research, stringent entry requirements and tight financial controls and planning.

Much will depend, however, on the views of the new vice chancellor whose appointment is now being decided. The present vice chancellor, Professor Paul Matthews, has recently announced his early retirement in August 1983. He is leaving a year early in order to give his successor time to get his feet under the table before the next round of UGC announcements.

Since Bath was granted its charter in 1966 it has been extremely successful in throwing off its image as a former college of advanced technology. It was originally intended to take 7,500 students when it became a university and this meant moving from its Bristol site to a new location.

The search for a suitable green field site followed by a long planning battle when one was found meant that Bath was slower to get off the ground than its fellow former colleges of advanced technology.

Ironically it was decided in the early 1970s to stick at 3,500 students which meant the Bristol site would have been large enough. The move to Bath is seen as psychologically important in shedding the CAT image and in preventing the institution from being regarded as the second Bristol University. The delay in starting is also regarded as having been valuable in ensuring a slow, well-planned beginning.

The emphasis on research work has been made by Professor Matthews who sees it as providing the main distinction between a university and a college. "Research was extremely low here by normal academic standards and increasing it was the hardest part of the transition to the role of a university. You do not create a university by merely awarding a charter to a teaching institution."

Just under 13 per cent of Bath's income now comes from research compared with a national average of 11.5 per cent and postgraduate research students represent just over 11 per cent of the total student population.

Overseas students accounted for about 8.5 per cent of total numbers until the rise in overseas students' fees. Now the figure of 320 has dropped to around 300. The predominance of four-year sandwich courses at Bath is seen as a problem in recruiting overseas students who, faced with high fees, will tend to choose an institution offering traditional three-year courses. The aim is still to try to push the numbers back up but not, it is stressed, at the expense of lowering entry qualifications.

What one senior member of staff described as Bath's "horrendous" entry requirements are a subject of particular pride within the university. This year the A level scores of new students averaged 11.9 points out of a possible 15 which is equivalent to three passes at grade B. The highest score was achieved for the electrical and electronic engineering course where the average was 14.1 and where this year 24 out of 57 students had three passes at grade A. No department is allowed to offer a place on a score of less than 9 points.

While any special entry concessions to overseas students are ruled out, the scope for a small general relaxation of admissions qualifications is seen as a valuable safety net for the future. This year over 7,000 applicants put Bath as first or second choice on the UCCA form, an increase of 9 per cent. They were competing for fewer than 900 places.

The growing popularity of Bath is attributed to several factors. One powerful attraction has to be the hillside campus overlooking one of the loveliest cities in Europe. Another is its graduates' record in finding jobs. The sandwich system, carried over from the CAT days, with its strong links with commerce and industry, has helped employment prospects.

"I have sold the university saying 'If you want a job come to Bath'," said the public relations officer, Mr Garry Denbury, a former advertising man. " don't mind too much if it upsets other people. Universities used to be very gentlemanly about attracting students but now they are all publicizing themselves like mad."

This emphasis on competitiveness in appearance throughout the university, it is partly because of the institution's need to establish itself and partly because of the type of student which Bath attracts, Mr Denbury thinks.

Professor Raymond Thomas, head of business administration and senior pro-vice chancellor, believes that the university's emphasis on management data, strong financial controls and forward planning is part of the reason for its success with the UGC and for its ability to cope easily with the small privations that the committee did impose.

"We have come up the hard way. We have never been generously funded. We are constantly looking at where we are and where we are going. Money has never been coming out of our ears and we have always had to plan and to give ourselves as much information to go on as was possible."

Each school is constantly asked to look at what it does well and to identify areas of weakness. When the UGC visited Bath in June 1980, Professor Thomas says that the university could not honestly find anything that it did badly and that should be cut.

The present balance of one third science, just under one third technology and just over one third humanities and languages will probably be kept, he believes, although there might be some slight reduction in social science. There has been considerable reorganization in engineering and an MEng course in electrical engineering and a BSc in manufacturing are both now in their second year.

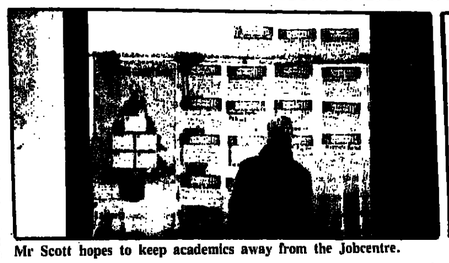
"You have to get the right product mix" Professor Thomas said. "You must make sure that everything you do is relevant. It is increasingly difficult for politicians to support the ivory towers and you have to go out and sell yourself to the community. There is nothing on offer here that is not in high demand."

Despite Professor Thomas's insistence that Bath should avoid becoming complacent, there is a strong feeling of confidence about the future and Professor Thomas himself says he believes the university is "home and dry".

"It is a harsh world and it is going to get harsher but we have an edge on demand for most of our courses and we can stand a lot of pressures. We made a conscious decision in the 1970s to go for quality rather than quantity and we have turned early criticisms about the standard of our intake and the level of research on their heads."

Applications for the job of vice chancellor are said to be coming in well. The prospect of living in Bath coupled with that of running an institution which seems to be doing quite nicely is probably a powerful combination.

Academics' labour exchange



Mr Scott hopes to keep academics away from the Jobcentre.

David Jobbins on the vice chancellors' re-employment information unit

Few people are awaiting detailed figures for the numbers of academics leaving the universities more anxiously than Mr Neil Scott.

Mr Scott heads the re-employment information unit set up by the vice chancellors earlier this year to help academic staff to find new jobs. In the absence of precise information about the numbers and subject areas of the 3,000 or more lecturers who are losing their jobs more or less willingly during the period of contraction, the scheme has so far had a large element of shadow-boxing.

It has been clear from the outset that the unit, initially housed in a cramped office on the fringe of the Manchester University campus, cannot do.

The task set by the vice chancellors when they established the unit with a two year lifespan and some £50,000 from the University Grants Committee, is to ease academics out of the university system into the outside world. It is therefore largely precluded from acting as a redeployment unit within the system, for this would have impinged on the universities' own procedures for recruiting staff – a process which continues but at a slower and different pace than before the cuts.

Non-academic staff are also excluded –the vice chancellors arguing that local solutions would be more appropriate.

Mr Scott is the first to admit that the unit treads a delicate tightrope from which it could easily be toppled by the gust whipped up by compulsory redundancies.

"The vice chancellors are now saying that through this unit and other provisions as decent employers they are trying to do the right thing by their staff and hope they will volunteer to leave accordingly.

"But if they say they are going to push out staff willy nilly, numbers of staff will not look on this unit as a goodwill gesture but as something which is their right. They may expect it to be more of an employment agency in the conventional sense than it can possibly be."

The first thing Mr Scott and his administrative officer Mr Andrew Simpson will want to discover from the UGC's figures, which are expected this month is the size of their task. More than 4,000 academic and academic related jobs are expected to disappear over the contraction period – and Mr Scott estimates that at least half have already left the system or are on the point of doing so.

"People who could make arrangements to continue working in some field, or view with equanimity the idea of easing off into retirement have probably gone."

It is with the second phase – those who have had difficulty reaching a decision or are coming under increasing pressure within their institutions – that the unit's work will be concentrated.

Not even all of this second phase will need help. One group, academics in their 50s or older who are eligible for the premature retirement compensation scheme with its enhanced pension and lump sum compensation, will either cease paid work entirely or will return to their departments part time for another two to three years under arrangements designed to bring about orderly restructuring. Many will quitely continue with their scholarly pursuits.

A second group – mainly younger but with a sprinkling of older staff – have been active in disciplines which have brought direct contact with industry and commerce and a chance of rewarding employment outside the universities. Most are helped on their way by the voluntary severance scheme which guarantees a deferred pension at 65 and a cash gratuity dependent on length of service and status.

But it is the third group – older people who wish or need to continue to work and younger staff without obvious alternative careers – that the unit has been established to help.

The recession is hardly an encouraging backdrop to persuading employers to snap up what Mr Scott describes as an unprecedented "windfall." A number of academic jobs are available abroad, notably in Nigeria. But other avenues on which the unit will offer advice to lecturers considering leaving the university system include consultancy work, starting a small business, and part time attachments perhaps to charitable bodies.

Mr Scott believes that many people, although eligible for PRCS, feel they "have some life in them" and will be looking around for things to do before making the irrevocable decision of surrendering their university job.

For them, part time attachments to charitable bodies who could channel their knowledge and expertise into socially-useful work, could be attractive.

But the toughest task is likely to come with younger people, especially if they have been employed on a series of short term contracts, who are especially vulnerable.

"Many of these people will be faced with the prospect of having to make a second career. They could be difficult, depending on their subjects," Mr Scott admits.

The service the unit will offer is to a large extent ill-defined until more precise statistics showing the size of its workload are made available.

It was set up with two broad functions – the first to act as a clearing house for information on possible vacancies on the one hand and details of staff seeking new jobs on the other. The first list of of vacancies contained just 24 separate posts but was regarded by the unit more as a notification of its existence and an indication of a larger scale operation which it hopes to mount in future than anything else. A second with more information is in the final stages of preparation.

But Mr Scott sees its more crucial role will be in counselling staff who are teetering on the brink – outlining the possibilities in general terms before giving specific guidance.

"People who have been locked into the academic system for a substantial part of their life are not going to make this considerable switch without a bit of help."

Mr Scott who headed Nottingham's careers advisory service until he took early retirement this summer, is the first to appreciate the depth of the trauma associated with job loss – especially for academics who have led a relatively sheltered life. Lecturers seeking counselling services may be able to visit the unit, and Mr Scott envisages touring institutions.

But if the demand is heavy he hopes that university careers advisers will be willing to take on the little extra work per institution that will be needed.

And for people who want to talk over the prospects but do not want to run the risk of seeking guidance from someone on their own campus, opportunities to see a careers adviser at a neighbouring institution will be arranged.

Mr Scott is an unrepentant expansionist who shares the deep reservations about what Government policy as channelled through the UGC is doing to the universities.

But he accepts the practical role for the unit envisaged by the vice chancellors. "The counselling side is just helping people to play the best hand possible with the cards they have been dealt".

He also feels the unit may provide an object lesson in illustrating one of the biggest weaknesses of British academic life – the tendency for universities to be self-contained societies with little interchange with the outside world.

"In other countries people move in and out to the material benefit of institutions, individuals and outside employers.

"This unit will have played a part in weakening the 'man and boy' tendency if it can show that people have moved out and done interesting things – that they have not just been thrown on the scrap heap."

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How to preserve the universities' intellectual vigour

If Britain is to continue to export her skills the supply of able graduates must not be allowed to dry up argues Edward Parkes

My theme is "The universities in the 1980s" and I shall endeavour to cover the cessation of growth, the rapid contraction of the current period, and the problems and options facing the universities in the later years of the decade. My treatment will, however, be biased in two ways which are not suggested by my title. First, because of *your* particular interests, I shall say more about science than about arts; and second, because of *my* particular interests, I shall give some prominence to the activities of the University Grants Committee. This is not because I have any exaggerated view of the importance of the UGC in university affairs, but because presumably one of your reasons for inviting me was so that I should talk about the committee.

It may be helpful if I begin by reminding you of the size and composition of the university system about which I shall be talking. It is one which will have, in rough terms, and by the mid 1980s, a quarter of a million full-time students of whom 120,000 will be studying arts subjects and 130,000 studying science. In addition to the full-time students there will be about 400,000 part-timers adding up to 45,000 full-time equivalents.

Individual universities vary in size from the more than 30,000 of London to the just over 2,000 of some of the newer universities. Although the system as a whole is roughly equally divided between arts and science, individual universities vary from about a quarter to three quarters in their science component. It is quite wrong, however, to assume that in the extreme cases the minor component is likely to be of poor quality. There is very valuable applied science in some of our arts-biased universities, and some of the best language work goes on in the so-called technological universities.

Nevertheless, the system is diverse, both quantitatively and qualitatively. We can illustrate the last feature in terms of the attractiveness of different institutions and departments within these institutions to students with high A-level qualifications. I must emphasize, in using this parameter for illustration, that it is only one among many indicators of quality, and not one that is particularly preponderant in UGC thinking.

If we ignore the extremes of education and medicine, the average A-level scores of undergraduate entrants differ little between the main subject groups, only about one point, in fact, on the usual 15-point scale. The average A-level scores of entrants to individual universities differ much more widely – about 7 points on the 15-point scale. But, within individual universities which have some of the lowest average A-level scores of entrants there are subjects where the A-level scores are above the national average; and in some of those with the highest average A levels among their intakes, there are subjects with below average scores.

In other words, quite a lot of universities, as perceived by able 18-year-old aspirants, are a bit of a curate's egg. Further, the pecking order of universities and of individual departments in terms of the A levels of undergraduate entrants is by no means the same as that in terms of research activity. There are some institutions where nearly all of the indicators, however you measure them, are highly positive, but there are *no* institutions where all of the indicators are equally consistently negative.

This, then, is the university system which we have to consider, one which is highly diverse, quantitatively and qualitatively, both between institutions and, more importantly, within them. What has been happening to it, and what may happen to it in the years to come? First, I think it is important to dispel the idea that until this decade the universities were living in a golden and trouble free period. It is true that they had for a long time been expanding, and problems which are relatively easily managed in an expanding system can become acute in a static or contracting one. Nevertheless, there were genuine symptoms of malaise in the 1970s.

The UGC annual survey for 1975/76 said "This has been another year of extreme financial stringency, annual financing, and short term decisions." In 1976/77, the UGC wrote: "The dual support system is now under great strain. Because of the cuts in the unit of resource in real terms, research and scholarly work have been major casualties." So the universities did not face the 1980s from a position of feather-bedded complacency. The erosion of unit funding, and the lack of any long-term financial horizon, following the breakdown of the quinquennial system, were having damaging effects on both teaching and research in the later 1970s, even before expansion ceased.

Nevertheless, it is convenient and appropriate to begin my story with the year 1980/81, because in that year two things happened which were of great significance to university finances. The first was that as from October 1980, no provision was made within recurrent grant for new overseas students. Overseas students were in future to be charged the full cost of their education, and since this would almost certainly imply reduced numbers, the universities would lose an unknown, but significant part of their income.

The second was that the 1980/81 recurrent grant was announced as having the same value, in real terms, as that for 1979/80. In other words, the decades of financial growth had ceased. Not, please note, the decades of student growth. The loss of students from the system each year, those who have completed their courses, represents the intake of about three years earlier. In a system which has been steadily expanding, unless you restrict intake in a given year to a level less than that of three years ago, students will continue to rise. This phenomenon is commonly known as "roll-on".

In an endeavour to limit the roll-on effect, and thus the damage to the unit of resource, the UGC suggested to universities that they should limit home undergraduate admissions in 1980 to the same figure as in 1979, and indeed this planning assumption underlay the Government's provision of grant. In fact, universities took 3 per cent more new home undergraduate entrants in 1980 than in 1979, but the increase varied between subject groups. For medicine and allied subjects there was a slight decrease. Social studies and the natural sciences had less than average increases. Arts and technology had above average increases, but the most striking example of a total disregard of the committee's advice was in mathematics, where the intake was 18.5 per cent above that of the previous year.

The roll-on effect was such that *total* number of home undergraduates in 1980/81 was 3.5 per cent higher than in 1979/80, but for mathematics the increase was 12 per cent and for technology 6 per cent. It came as no surprise that when the traumatic events of 1981 occured, and the UGC made its dispositions using the latest year for which there was complete and reliable data, 1979/80, as its reference point, the mathematicians and the engineers were most vociferous about the wickedness of the committee in not taking heed of their increased numbers in 1980/81.

So much for 1980/81, the year of level funding. Much worse was to come. Growth was not merely to cease, it was to reverse, in the summer of 1979, the Government asked the UGC to describe what would happen to the university system under a variety of financial scenarios ranging from level funding to cuts more severe than those which we have actually experienced. The committee gave its answers in the autumn. Nothing which has occurred in the two and a half years since then has caused me or any other member of the committee to want to change that advice in any way. Unfolding events have shown it to be extremely accurate.

This may be a convenient point to say something about the UGC's advice to government – not about its confidentiality, which offends MPs who believe in open government – but about the nature of that advice itself. It is very important to realize that the UGC is *not* an advocate for the universities. The UGC's job, as far as government is concerned, is to offer accurate analysis of the present, and as far as it can, of the future.

In 1981 the Government announced an 8.5 per cent cut in university recurrent grant, spread over three academic years. To the 8.5 per cent cut in recurrent grant must be added the loss of income associated with the diminished number of overseas students. The total is difficult to quantify accurately, but it seems most probable that the loss in recurrent grant will be 15 per cent in real terms as between 1980/81 and 1983/84.

The UGC was not, of course, unprepared for significant retrenchment. Following the warning signals in 1979 we had asked the universities to describe how they would react to various levels of cut-back, and we had also spent half-a-day in London with every institution which we fund. These meetings, with six to eight people on each side, were of a type in which the UGC had not indulged before, and they proved extremely valuable. They were also, in total, extremely exhausting.

As well as our meetings with universities, and the careful study by the committee and its sub-committees of the mass of special documentation which the universities provided, additional to our normal very extensive statistical material, we tried, before considering how to deal with the cuts, to consult and take advice from other sources. We had meetings with the research councils, representatives of employers, the senior chief inspector and her colleagues to learn about the situation in the schools, and so on. There was, of course, no limit to those whom we might have consulted and there is thus no limit to those who feel they should have been consulted, but were not.

There is one aspect of the UGC's gathering of information which is widely quoted and widely misunderstood. That is the formal visitation, either by the main committee or a sub-committee. These visitations take place roughly at five-year intervals, to fit the old pattern of quinquennial funding, but the interval can be much longer, usually at the university's request. On average, information received on visitations will be three or four years out of date at the time of a given grant distribution, and it has never played any significant part in funding decisions.

Why do we go on visitations, then? I think individual members of the committee may find them useful for different reasons, but I personally would lay emphasis on two aspects. First, as far as the individual institution is concerned, I think it is important that substantial numbers of staff and students at all levels should have an opportunity of meeting the committee and

> The recruitment of young blood is the single greatest difficulty facing universities during . . . the 1980s.

of engaging in dialogue. It is important that they should realize that we are not a set of faceless bureaucrats but largely a group of academics coping with the same sorts of problems as they are themselves. The second point is a more immediate and operational one. In visiting a dozen or so universities during a year, we may be told of similar worries and concerns in nine or ten of them. If that is so, these worries are common to the system, and we need to be aware of them in our planning, and in the advice which we may give to universities generally. What a visitation does not do, and was never intended to do, is to provide us with information for action in relation to an individual university, and only rarely in relation to an individual department. We have other means of getting that sort of information, and indeed, as far as specialist subjects are concerned, our sub-committee members are usually well informed. When I was an engineering professor, I knew pretty clearly what was going on in all other engineering departments, and I didn't need to visit them all to find out. Conferences, publications, learned society meetings, public lectures and so on mean that at least the senior people in a given discipline have a pretty good and up-to-date idea of what is happening to their speciality in all universities. In any case there are plenty of visits both by members and officers of the UGC to individual departments which form no part of any formal visitation programme.

So, we contemplated the problem of a 15 per cent cut in university funding in three years against a background of knowledge and advice culled largely from the universities themselves, but also from a variety of other sources. The only interested party who gave us *no* advice was the Government.

Before I discuss what the committee did, there are a few points to be made about the university system from a functional viewpoint. First of all, it exists. We were not asked the question "how would you construct an optimum university system *de novo*, given 85 per cent of present funding". Second, the degree of flexibility in the system, in a three-year time scale, is limited. Three years is the length of the typical undergraduate course. You can't stop and start courses overnight. Then there are other inflexibilities determined by the rate at which you can shed and in some cases recruit staff, and the ability to change the uses of physical plant. Third, there are external constraints on the system, particularly in the feedstock. There is no point in providing places in numerate disciplines for more students than are likely to appear from the schools with good numerate understanding. The same argument applies to languages. The messages at the output end, except in rare cases, are more diffuse and sometimes contradictory. Does industry want more engineers, or does it really want the same number of better engineers? In which scientific areas must we retain a research capacity, even though the departments concerned attract very small student numbers? But the biggest constraint of all was, of course, the financial one. How could we get best value out of a grant which in 1983/84 was going to be 85 per cent of that in 1980/81, given that we could not build a new university system from scratch?

Before describing how the committee set about its task, there are one or two alternative scenarios to be cleared away. One lobby said that the committee should have resigned. This would have been equivalent to announcing that although the universities had been very willing to be entrusted by successive governments with their own affairs when the going was good, they were incapable or unwilling to do so when the going got rough. This, it seems to me, would have been a rather sad commentary on the skills or moral fibre of what is reputed to be both one of the ablest and most independent sections of the community. Another lobby, led by the Association of University Teachers and others, suggested that the committee should have applied a uniform cut across the board. This is the equivalent of resigning without the discomfort of losing the admittedly very modest fees which members are paid. Apart from the question of taking money under false pretences, there seems to me no obvious reason why a system which loses 15 per cent of its funding should operate most effectively as a precisely scaled down model of the larger system which it once was. Indeed, there do seem to me to be extremely obvious reasons to the contrary.

So much for what the committee didn't do. Now what *did* it do? To understand that you have to understand something of the committee's viewpoint of universities. The simplest analogy is to say that we are a sort of consumers' association. The UGC's prime concern is with the *users* of the university system, be they undergraduates seeking a first degree, industrialists seeking specialized technological advice, or members of staff trying to pursue scholarship and research. This means that we are subject- or interest- rather than institution orientated. The would-be undergraduate does not say, "I want to go to university X and I don't care whether I read chemical engineering or history." He or she says "I want to read chemical engineering and I will consider those universities which offer chemical engineering courses and make my choice among them according to which of them teach the subject in the particular way which appeals to me – for example as a sandwich course or not – and according to my assessment as to which of them may offer me a place." Similarly the research worker does not say, "I must go to university X and I don't care whether I inquire into metal fatigue or the supply problems of the Spanish armies in the Netherlands". He or she looks at those universities conducting research into metal fatigue and chooses accordingly.

Although vice chancellors and senates and councils are very much concerned with universities as separate autonomous institutions, the customers and the UGC are much more interested in subject provision across the whole system, and our interest in institutions is secondary. We do have to have that interest, of course, because subjects don't stand alone, and particularly in the cases of continuing education and research there may be important links to be maintained with the local community.

The UGC's first concern, then, was how to use the diminished resources to maximize in quantity, quality and variety the subject provision across the system, bearing in mind the kind of constraints on our choices which I mentioned earlier. Let me illustrate this in the case of teaching provision with two examples. First of all, medicine. Medicine, particularly at the clinical stage, is the most expensive teaching subject which we have. Further, it had enjoyed a degree of protection in the 1970s which had not been accorded to any other subject. The unit of resource in medicine had remained constant in a decade during which that in all other subjects had dropped by about 10 per cent. Medicine is a subject in which there is an agreed target intake, determined by government after taking advice from various interests, and in 1979/80 the intake

number was about 200 short of the target. The first thing which the committee determined was that the best that we could possibly do for medicine was to hold intake numbers constant. Because of roll-on, this meant an increase of 5 per cent in total numbers. Further, we considered that it was simply not possible to maintain the protection of the unit of resource which medicine had hitherto enjoyed, and we eventually settled on a cut of 11 per cent.

These conclusions were not, of course, reached without a great deal of discussion with Department of Health and Social Security on the implications for the mutual assistance which exists between medical school staff and National Health Service consultants. We considered at some length the closure of a particularly prestigious but also highly expensive provincial medical school, but eventually decided against this, although the distribution of the cut between medical schools varied quite markedly and we discriminated in favour of dentistry.

My second example is engineering. Here, of course, there is no agreed government target, and we had to heed some signs of an increased interest in engineering in the schools and the not wholly consistent views of employers, but which seemed to point, on balance, to a slight shift away from highly specialist towards more general undergraduate courses, largely because the engineer with the broader background can adapt more readily to a rapidly changing technology. We also had to be conscious of the fact that there is a substantial output of engineers from public sector institutions. After considering these and other points, and after a careful study of individual departments, we decided that we could manage a 3 per cent increase on 1979/80 figures, with some redistribution of numbers. In fact the redistribution was quite slight. Of the 44 universities which offer engineering courses, about half were expected to increase their numbers and about half to remain unchanged. Two universities were asked to decrease their engineering numbers. These were, of course, the only two in which press or parliament showed any sustained interest.

The redistribution of engineering numbers was carefully considered but in the end decidedly marginal business. The 10 largest engineering faculties before the cuts remained exactly the same 10 after them. Seven of the ten are in so-called technological universities and they include the two in which numbers were reduced.

So much for two expensive subjects in which the committee thought they could manage an increase in student numbers relative to 1979/80. There were a few other areas in which we thought increased numbers were possible – all except one of them in science. For the rest, however, there had to be reductions – remember we were coping with a 15 per cent cut in funding.

But this consideration of the teaching function is only part of the story. The UGC is also in the business of supporting research, not merely in providing a basic floor, on which other agencies can build, but in the complete support of a good deal of research, in science as well as in the arts. What we were conscious of was that that component of recurrent grant associated with research, something in itself not easy to quantify, was not in future going to provide an adequate basis in every university, and that we would have to be discriminatory in research support, as we had been in our distribution of resources for teaching.

We received quite a lot of gratuitous advice in this area, in particular that we should divide universities into three categories – research institutes, those doing both teaching and research, and liberal arts colleges with little or no provision for research. We never seriously considered this course. The university system is not simply a highly diverse one, it is also a dynamic one. The type and quality of the work in its components changes with time, sometimes very rapidly.

Nevertheless, there was *not* enough money for adequate research support everywhere, and we had to make choices. We did, of course, consult the research councils, and we looked at such matters as the extent to which departments were attracting external monies. But this tells you nothing about research in the arts or in the cheaper areas of science. We could learn something about these areas from the quality and quantity of published works and from the personal knowledge of main and sub-committee members. We left no institution without research support, but we did distribute this component of grant, which includes not just laboratory hardware and consumables, but such items as technicians, library periodicals, and above all, staff time, in a markedly uneven manner. As far as the natural and social sciences, technology, agriculture and medicine are concerned, our policies marched to some extent with those of the research councils, but not too closely. It is important that the meshing of our distribution of money with that of the research councils should never become too fine, or we shall exclude the unexpected.

So, on a mixture of teaching and research considerations, we built up the university pattern which we thought would make best use of the reduced level of grant. The picture I have given of the process is, of course, an incomplete one. We did have to consider institutions as well as subjects, we had awkward cases where a department whose continued existence could not be justified on teaching grounds nevertheless sustained important research work, we had special local problems, particularly in Scotland and Wales, and so on.

Anyway, we made our dispositions and we then had to consider what to say to universities about them. Although the UGC has always built up its distribution of recurrent grant from detailed considerations, it has not disclosed much of the detail to institutions, believing that universities should be free to determine their own destinies in ways which might differ from UGC thinking. Clearly something rather less laissez-faire had to be adopted on this occasion. So we did give advice – some of it very generalized, but in some cases quite detailed. Finding the correct path between central dirigism and local autonomy is not an easy task.

Thus, we made our distributions of money and also of student numbers, and we formulated our advice, and we told the universities. The result, of course, satisfied no one. You can have moderately contented clients when you are playing Father Christmas, you can have none when you are playing Scrooge. The AUT said we had been far too discriminatory, the research lobby said that we had not been discriminatory enough. Most universities would have been happier with less advice, most departments in those universities wanted much more specific advice in their favour.

The public controversy centred almost entirely on the distribution of the grant, so much so that its origins are forgotten. Almost everyone, including yourselves, refers to the UGC cuts in university provision, not to *Government's* cuts. For this I am sure the Government offers its profound thanks, although not publicly, to those who have turned the interest in our direction and away from the prime movers.

So much for the process of determining the cuts. I have dwelt on it at some length, partly because I wanted to describe the compounding of the many elements which went into its determination, and partly because this reversal of decades of growth is the most striking thing which has happened to the universities in the 1980s, at least so far, but the decade is young. Incidentally, it became clear at an early stage that we were not going to close a university. This is because of the curate's egg phenomenon which I mentioned at the beginning. Even our weakest institutions had, at this level of cut, sufficient parts that were worth preserving.

Now, how did the universities set about the task of adapting to the lower level of funding? And to what extent were they willing or able to move to the kind of future shape which the committee had suggested? Well, first of all, of course, they had to shed staff. Universities are very labour intensive, and their only means of reducing their expenditure significantly is to employ fewer people. The least painful way for them to do this, apart from naturally occurring vacancies, is by early retirement. I shall not dwell on the mechanics of this, except to say that it took us a long time to persuade government that extra money would be needed for this purpose and an even longer time to get agreement to terms sufficiently generous to attract people to leave. One of the problems here, of course, is that terms which are sufficiently generous to persuade the run-of-the-mill staff to leave are extremely attractive to able people who can make a second career outside the university system. Ensuring that staff losses are *only* in line with sensible academic planning can cause a good deal of acrimony and a good deal of conscience searching in university administrations faced with immediate cash flow problems.

However slowly or quickly universities are adapting to sensible staffing distributions, one feature is very apparent. A high proportion of the losses are occurring by early retirement in the 55 to 65-year-old age group. The age structure of university staff was in any case suffering from a middle-age spread because of the rapid expansion of the 1960s. The use of early retirement to reduce staff means that the over-55s are being substantially removed from the system.

The implications of this for the intellectual vigour of the universities are alarming. Even assuming that there is no further diminution of funding beyond 1983/84, we shall have a system of constant size, with no significant number of retirements for 10 years. Losses other than those due to retirement are unlikely to be large. We thus have the problem of a very low level of recruitment. It may be true that many arts dons produce work of lasting importance towards the end of their careers, the carefully distilled wisdom of a lifetime of scholarly inquiry, but scientific research needs a steady influx of bright young people, with new and radical ideas. The recruitment of young blood is the single greatest difficulty facing universities during the rest of the 1980s. It is one of the four major questions posed in the Secretary of State's letter to me of six days ago, which you will have read because, unusually, it was made public.

It is probable that the UGC will be able to make some small contribution to the recruitment of young people, but apart from what we can do to help the universities, what can the universities do to help themselves? This brings me for the first time to the period beyond the cutbacks – to the universities in the latter half of the 1980s. I have assumed in my discussion so far that the universities had, and will have, little room for manoeuvre except within the limits set by state funding. Even within state funding, of course, the flexibility of an individual university can be varied. With low fee levels and defined student targets, income is fixed, but also assured. With high fee levels and no limitations from the committee, individual universities can compete for the available funding. The problem with a system which is then basically responsive to the whims of 18-year-olds is that it may or may not satisfy national manpower needs or provide an appropriate distribution of research resources.

But if there are problems with a free-for-all within the limits of state funding, what about private enterprise as an addition to it? Universities already attract 10 to 15 per cent of their income from sources other than block recurrent grant and student fees, but a good deal of this comes from other central sources such as research councils or government departments. Is there scope for more genuinely private money, from industry or alumni? Certainly strenuous efforts are being made by universities to attract partners or donors at present. The American pattern of substantial alumni commitment seems unlikely to be significant in the UK. The smaller differentials in income in this country and the more limited tax incentives mitigate against massive and sustained giving, for which there is in any case no existing tradition.

If private individuals are unlikely to help on any major scale, what about commerce and industry? Here I think the signs are more hopeful, provided we move into a better economic climate. This is partly dependent on the fact that an increasingly high technology industry will find a closer relationship with the research activities of the universities' of advantage, and partly on the changing nature of the universities educational role. There are clear signs already of an increasing demand from those in employment for opportunities to update their knowledge or to acquire new and different skills. The UGC is mounting a major inquiry into continuing education in 1982/83 with the intention of trying to discover how we can best help to encourage it through grant, and also to formulate advice on fee structures. Certainly the provision of part-time or short intensive courses for those in the 30 to 40-year-old age group is quite the most effective way of getting new knowledge into industry, and at a level where it will be used.

I have tried in the last few minutes to show that there are not only problems but also opportunities facing the universities in the coming years, but those opportunities are not confined to the university sector of higher education. One of the areas which we need to explore and develop in the 1980s is the relationship between the various components of the four questions posed in the Secretary of State's letter to which I have already referred. How do we integrate into a coherent whole the contributions of the universities, the polytechnics and other public sector colleges? One of the major difficulties which the UGC found in its recent reconsideration of the universities was that we could not plan in the context of a total system because there simply does not exist in the public sector the detailed knowledge and sophisticated data base which we have readily available for the universities. The new National Advisory Body is trying to remedy this deficiency, but it cannot do it overnight.

This reference to the NAB brings me to another matter which will clearly require thought in the coming years, and that is the nature of the interface, or interfaces, between government and higher education.

At present we have two very different kinds. The UGC, 63 years old, with all of its members appointed in a personal capacity, and traditionally subject to ministerial guidance only on the broadest strategic grounds. Incidentally, I do not regard Sir Keith's letter as in any way changing that relationship. The new NAB is representative of particular groups and at its highest tier chaired by a minister.

As far as the UGC goes, I should be sorry to see any move towards representative composition, or any detailed limitations on its independence. Its great virtue from the governmental view – any government – is that it offers advice free from the taint of politics with either a large or small P: and from the universities' point of view that it consists largely of people themselves working in universities and facing daily the kind of problems locally which in the committee they are tackling nationally. In particular, the committee is genuinely independent of the DES, and is thus structurally different from the NAB, with its membership links with both the department and local authorities. I am sure that at an operational level the UGC and the NAB can work together very well, but I think future ministers may find them rather strange bedfellows.

Over the matter of the UGC's independence, perhaps I might be permitted a moment's comment on its membership. The value of the particular style of membership of the UGC lies not so much in the formal independence of the members as in the fact that they bring a mode of thinking into the problems of the universities which is not that of the DES. As a number of DES officials said to me after last year's grant letter – "no group of officials could ever have produced a result like that. Even given your information, they would have sought the middle ground, the safe solution. The UGC didn't seek the safe solution – it sought the best solution.

In this introduction to your discussion on the universities in the 1980s I have necessarily had to deal perfunctorily, or omit altogether, matters of major significance. I have spoken only briefly of the dual system for the support of research. I have not mentioned at all the industrial liaison units in universities, many of them started as UGC initiatives, or the development of science parks.

But now let me end by returning to wider themes. First of all, the cuts and thereafter – need it all have happened? With regret, I think it was inevitable, and that it had almost nothing to do with the particular administration. Whichever political party had been in power, I think that the events of the early 1980s, as far as the universities are concerned, would have followed similar lines. The whole business seems to me to have much more to do with economics and demography than it has to do with political philosophy.

I disagree with what has been done on two grounds. The first is pragmatic – this country is not blessed with vast supplies of exportable raw materials. We must live, as we always have since the industrial revolution, on our skills, and the skills that matter are going to become increasingly sophisticated. We need a large supply of able graduates to sustain us. The second is more fundamental, but less economically orientated. I believe that people live more interesting, if not necessarily happier, lives, if we develop their talents to the maximum possible extent. But in voicing both of these grounds for disagreement, I recognize that I am parti-pris. For the first, I am an engineer and I believe in engineering. For the second, I am an educator and I believe in education.

At the end of the day it is for an elected government to decide the distribution of resources between the various areas of public expenditure. That government, however, is influenced by less disinterested advice than it gets from the UGC, and I am not sure that the media coverage of education is either as extensive or as professional as that in competing fields. At any rate I shall finish with a plea for education, not by myself, but by a politician.

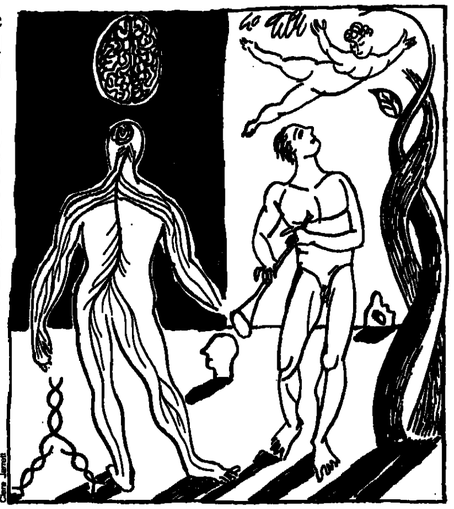
In a speech to the Commons on June 18, 1874, Disraeli said: "Upon the education of the people of this country the fate of this country depends." Perhaps more contemporary politicians of all parties should *read* and *heed* the Earl of Beaconsfield.

The author is chairman of the University Grants Committee.

This is a shortened version of a talk given by Dr Parkes to the Parliamentary and Scientific Committee in July 1982. A full text, as with all talks delivered to the committee, will appear in Science and Parliament *which is published three times a year and subscription details of which can be obtained from Wendy Crowdy, Longman Group Ltd, Sixth Floor, Westgate House, The High, Harlow, Essex CM20 1NE.*

Creating a perfect match

Donald Kennedy argues that the artificial separation of scientific and cultural thought affects our critical understanding of society



Numbers of our fellow citizens can readily be persuaded that they can be made more powerful by pyramids, cured of cancer by eating apricot pits, lost forever in something called the Bermuda Triangle; able to pick cards or bend spoons by concentrating hard enough; and made svelte forever by a diet from Scarsdale this year, or Beverly Hills the next. These are danger signals and it is hard not to agree with those who say that among the obligations of the scientist is the defeat, through the broadest kind of general education, of this vulnerability to scientific fatalism and – even worse – star prediction for uncritical scientific judgments about decisions facing our society.

Science has become separated artificially from other forms of human activity, and credited with rules, standards, and procedures that do not apply to other kinds of thought and analysis. What I found most startling during two and a half years as head of a federal scientific regulatory agency is the strength of that belief that something called *science* and something called *policy* can exist in absolutely watertight compartments. That is a dangerous fiction.

For example, the Congress regularly establishes desired social outcomes and sets scientific standards that it believes will achieve them. But when a scientific process so specified yields a result that makes voters unhappy, it is often the science that is attacked – under the mistaken impression that it is not really part of the policy.

I arrived in Washington to take over the Food and Drug Administration about three weeks after the agency had received the results of animal tests that required it to remove saccharin from the market under law. I received a number of challenges on that matter from members of Congress, mostly attacking animal tests and their rationale. By artificially isolating science from policy, the argument was deftly moved to smoother ground. If you are running for re-election, it is much more comfortable to discuss the question "are animal tests appropriating for estimating human cancer risks?" than the substantially more germane question "should weak carcinogens that people like be permitted in the food supply?"

Conversely, it was very difficult to explain that science is full of embedded "social policy". I repeatedly heard testimony before congressional committees in which the results of an experiment assessing the risk of some substance were stoutly represented as "significant" by one group and equally stoutly as "not significant" by the other – one set of advocates claiming that a particular result *exceeded* the 95 per cent confidence level, and the other arguing that it barely failed.

Science is an activity in which reliability has high social significance, and accordingly scientists have declined to accept a result unless the probability is very low (for example, 1 in 20) that it could be due to chance alone. We selected that value through a social process entirely analogous to the one established "beyond reasonable doubt" as the standard of proof in the criminal justice system. It is thus a social covenant, expressed in scientific notation. Without the notation, it reads: "I want to base the scientific enterprise upon results that are nearly certain, not merely quite probable." That may or may not be the right standard for, say, the social determination of risk. In a similar way, we built our criminal justice system on the covenant that we much prefer to let the guilty go free than wrongly to punish the innocent.

Social policy and science are much more closely intertwined than is commonly thought. In the end, that was the most dominant theme of my period of exile in government. Despite our affection for science and for scientific precision, they cannot help us decide what we want or how much of it. They can only help us live by those decisions. In the search for policies, science may thus clarify and inform the discussion but may never dominate it.

There is another kind of isolation between the sciences and "liberal learning" that may be even more damaging in the long run. It is the failure to understand the powerful interpenetration of scientific and humanistic ideas – and the resulting loss of much of science *as* culture.

Perhaps as a consequence of the increasing public mystification about science, there is a troublesome tendency to regard science as not belonging to the mainstream of intelligent thought about what human society is and what it can become. Scientists have been shy about taking a claim to the broad intellectual significance about their own subject matter. They have been content to accept the label "pragmatic" or "practical" and humanists, in turn, have been too willing to take them at their own valuation.

Nowhere was the case for interpenetration between the sciences and the humanities be made more compelling than in the area of evolutionary thought. Yet ironically, it was the Darwinian revolution that probably created the "two cultures" problem in the first place. As long as one could be confident about the static nature of the universe, of the physical landscape of Earth, and of the nature of its inhabitants, a single and coherent system of natural philosophy could embrace the humanities and the sciences.

The last period of confidence in the unity of human knowledge was the Enlightenment. That confidence rested largely on the dominant position of theology in natural philosophy. God the Creator oversaw a clockwork universe that moved according to a set of revealed principles; and within it was a sacred Earth, whose land forms were reshaped only catastrophically for the purpose of punishment and whose creatures are immutably set in the pattern of their own creation. The range of organic diversity and the intricacy of morphology thus became, in the hands of the great naturalists of the eighteenth century, at once sources of wonder and reassurance.

During the eighteenth century, and with accelerating force in the nineteenth, that view was challenged by a series of scientific revolutions. The first was cosmological, and had the effect of making the Creator more and more a spectator in his own universe.

The second, much more troublesome, was geological. Hutton and then Lyell challenged and ultimately routed the notion of catastrophism, and substituted for it the gradual dynamics of uniformitarianism. That Lyell eventually went too far with it is not very important; in the mid-nineteenth century, gradualism screamed out to be transplanted from the non-living to the living world. That, of course, was the contribution Darwin made in the *Origin*: the demonstration that slowly-acting selective forces in the environment changed the *nature* of living beings over time, just as erosion and sedimentation changed the landforms.

Darwin's laborious demonstration that biological species are not immutable, though often represented as a theological revolution, was much more a philosophical one. No one supposed that Creation had been disproven, only special Creation. God had not been denied, only forced to retreat still more into the spectator's role: instead of making creatures, He had made a plan for their evolution. Darwin himself saw no loss of divine majesty, but a gain.

That does not sound much like religious heresy, but it *was* academic heresy. What Darwin had accomplished, for once and for all, was the demonstration that a single way of knowing was no longer possible. And as a consequence, the strongest reaction in the end came not from the pulpit but from the dons of Cambridge and Oxford.

In addition to overthrowing the unity of natural philosophy, Darwin launched a new and troubling vision of humankind. The shaping of form and function – the "nature" of organisms – by natural selection raised the prospect of a phylogenetically determined human "nature".

That prospect, reinforced by twentieth century genetics, has in turn reformulated some of the most profound social issues of our time. The Darwinian view of natural selection was promptly seized, and promptly misapplied, by proponents of the world's greatest competing systems of political economy. Herbert Spencer, and a succession of clumsier imitators like Andrew Carnegie, employed "survival of the fittest" as justification for the human competition in "free enterprise". In doing so they mistook economic fitness for reproductive fitness, an error occasionally repeated by foolish men and women even today.

The Marxists, on the other hand, found the vision of biological determinism so deeply threatening that they were driven to extraordinary inventions for getting political economy back in the driver's seat. So desperate were these that they reached back a century before Darwin to a failed doctrine that held inheritance to be under direct environmental control.

The establishment of Lysenko's version of Lamarckianism as a state-scientific religion in the Soviet Union for a third of the twentieth century was its cruelty. Anyone who doubts the power of the connection between science and culture should examine that case as a cautionary illustration of its potential for mischief.

Today, one would suppose, listening to the largely political debates between right and left over how much to attribute to nature and how much to social forces, that the same issues are still dominant. In recent years, these have found their most acute focus around the coined discipline of sociobiology. The key question claimed by the sociobiologists – how behaviours can be selected when they primarily influence the survival of others and not the behaving individual – is an important one. But it is hard to see it as the centrepiece of our understanding of cultural and biological co-evolution – let alone of how we should organize political economies. The focus on sociobiology has in fact overshadowed some more important cultural consequences of post-Darwinian thought.

In historic terms, the real scientific successor to Darwin was Sigmund Freud. To Darwin's base of phylogenetic determinism, Freud added the mind as a part of what was determined; and he also added a powerful set of ontogenetic determinants to the phylogenetic ones. Human nature, in the Freudian view, was dominated by evolutionary shaping and by "early influences" upon the psyche.

In effect, Freud made the mind part of biology. Kant had recognized madness to be biological, but held all else in the mind to be moral and rational. Freud and the modern psychiatrists, biological and behavioural, put all mental process on the same continuum; they made mental illness part of the human condition or, perhaps, even the reverse.

Indeed, in just 100 years, the biological sciences have triggered a most extraordinary re-ordering of our concept of what it means to be human and to be free. It is a view so new and so robust that it sometimes threatens to crowd out traditional choice and conventional morality. The focus on the individual is so powerful that the world shrinks as the self swells, if there is a defect in our behaviour, if we fail in what we suspect may have been an obligation, there are a host of comforting explanations; selfish genes, oppressive early experiences, or defects in catecholamine biochemistry. Finding an ethical path within our new vision of self is one of the great tasks of contemporary humanism.

At the same time, our view of reality has been reshaped in a way that also tends to internalize and individualize it. One's perceptual surround, we now understand, is profoundly affected by patterns of neuronal connections that have been assembled over evolutionary time, and often refined during early development to extract features of the world that are of particular relevance. There is not one single objectively verifiable reality.

These new propositions about reality and rationality are the more troubling because we are now being told that the process of perception may actually extend much further than we thought – that is, beyond sensory qualities like brightness and audibility to things we are more accustomed to call "values". Psychologists and neurophysiologists have shown that various sensory systems exhibit "range compression" – that is, become less sensitive and able to discriminate as stimuli become more intense. Their observations, tplemorized years ago as the Weber-Fechner law, explain why we can detect a difference of one gram between two relatively light weights, yet barely recognize a ten-gram difference if the weights are an order of magnitude heavier.

We once scoffed at the idea that such laws of perception could be applied to the measure of more complex parameters like value or risk. Yet some strikingly similar rules are emerging from tests of human preference that utilize choices between rewards or risks of different magnitude or probability. It is a sobering thought that our biological endowment may actually fix and establish many of the parameters we thought belonged to an external world. It is even more sobering that we may be biologically – innately – committed to some qualities we thought we were choosing freely and on the basis of individual experience. Again the self swells and the world shrinks.

That brings us back finally to equality – or rather, it brings us *back*; for it was the impact of biological determinism on notions about equality that tempted Carnegie and the Marxists into their futile wrestling matches with evolution. Darwin's intellectual legacy is not merely that some individual differences are a consequence of biological endowment, nor even that they may involve the "mind" and perhaps perceptions as complex as value. It is that these individual differences are substantial enough to react to subtle selective forces, and give rise to large differences in reproductive fitness.

The Origin of Species and its twentieth century offspring – genetics, psychiatry, neurobiology – have brought us to an expanded view of what is within us, as opposed to what is without. As a consequence we are obliged to enlarge our respect for the degree of individual difference.

What does that say about equality? To many, it seems to damage the very notion. That view – held by many of those most repelled by the notion of biological determinism – seems to me quite wrong. Equal is not identical; different is not unequal. Social equality, that is, equality of opportunity, is simply not on the same continuum of choice with biological difference. To admit a degree of the latter does not condition our view of the former. It would be tragic if it did, for we need more and not less respect for individuality, which *means* difference. The great challenge for human society is to abandon the denial of biological differences and turn to the reformation of social opportunity so that it can fairly and gracefully accommodate these differences.

One branch of science – the biology of the past 100 years – has provided much of the substance for the most humanistic enterprise of all, that of deciding *what is human*. It has furthermore irrevocably changed how we think about the most social activity of all, that of designing political economies. A direct outcome of the evolutionary paradigm and its successors has been a profound reorganization of our views about human freedom, human rationality and human equality.

Accelerating culture becomes the *milieu* in which the selection of biological capacities takes place; and the latter, in turn, stir further quickenings in the pace of cultural evolution. So tight and so effective is this interplay that it has wrought the most rapid change in biological structure since evolution began – the growth of the human neocortex. And it has also produced, of course, a rate of change in the cultural *milieu* that is bewildering and sometimes frightening.

A result of the interplay between the two kinds of evolution, unexpected when it was first seen, is a convergence of cultural practice and biological nature, a matching between cultural and genetic fitness. This close coupling between the two kinds of evolution offers the optimistic that in time, there is likely to be a complementary relationship between our biological endowment and our social arrangements.

Uprooting the humanities from science robs us of a critical understanding that they are the products of a co-evolutionary process, just as surely as the brain and culture are. That unity is the brightest and most exciting academic vision we could have.

The author is president of Stanford University, California. This article is adapted from his University of Oregon Fall Convocation address.

BOOKS

'This is so, isn't it?'

by John Beer

The Critic as Anti-Philosopher: essays and papers
by F. R. Leavis
edited by G. Singh
Chatto & Windus, £9.95
ISBN 0 7011 2644 2

Wittgenstein once told Leavis that he had character but not intelligence – though, as Leavis wryly records, he continued with the comforting comment that intelligence could be picked up in the street. He also told Leavis to give up literary criticism: advice which was not taken.

Leavis, of course, did have intelligence, but not perhaps of the kind that Wittgenstein was looking for – nor for that matter of a kind that might have scored the highest marks in the normal intelligence test. Not for him the ability to make quick connections or swift analyses. The kind of intelligence he believed in, and valued in others, was one which subtly expressed the whole psyche. The ability to deal acutely in logic and scientific demonstration was, if prized upon as the only activity of the mind, a sterile and ultimately inhumane process. He saw about him a world which in its pursuit of technology had lost its old bearings, its known and familiar communities, and was drifting towards disaster.

For that reason, he was fond of calling himself an "anti-philosopher". It was a typically edgy and paradoxical self-description since, as some of the essays in this new collection show, he was drawn to the company of philosophers and enjoyed arguing with them. Browsing through letters one day he discovered Marjorie Grene's *The Knower and the Known* and seized on it as the kind of book that could be given to literary students to show them what philosophy might offer them. The fact that some professional philosophers were less than enthusiastic about the book only confirmed him in his belief that what they did was inadequate to human thought. Literary criticism, in his view, should be filling the gap which their analyses missed.

This new collection of his essays is built around that insistence, but is not confined to general discussion. It also brings together some valuable uncollected critiques from the past, such as those of Coleridge and Arnold, as well as his later thoughts on writers such as Blake, Wordsworth and Hopkins. In fact it would be hard to think of another collection of his work which shows so positively what he was about. It is when the term "anti-philosopher" is defined by way of positive evaluations of writers that the links between his literary criticism and his social thinking emerge.

It is certainly not a matter of straightforward hostility to philosophers – indeed, the concluding essay is entitled, conciliatingly, "Mutually Necessary". This was written in reply to a review article by the philosopher Michael Tanner which had been both flattering and searchingly critical of his work. Defending himself, Leavis took issue, for instance, with Tanner's discussion of the "probative force of literature", maintaining that one could not prove a value judgment. In his reply (not reproduced here, but worth turning to) Tanner argued that Leavis had been attacking a man of straw whom he had erected in place of the philosopher who had actually written the volumes and who would agree with many of the very positions that were being advanced against him. (By "probative", he protested, he had meant "self-probative".) Only some of the backwoods philosophers would agree to Leavis's stereotype.

Yet it is clear that a gap still exists between them. In his original piece of writing (quoted from Leavis's praise of Lawrence's *St Mawr*: "The power of the affirmation lies, not in any assertion or assertion or argument, but in the creative fact, his art; it is that which bears irrefutable witness. That fact does is beyond argument or doubt." Tanner had retorted, "Nothing that his art does can be beyond argument or doubt if it refers to things outside itself." It is a crucial point. For while Tanner would continue to maintain that much of what Leavis had to say was susceptible of a sound philosophical reading, his query raised the question of the role of intuition in philosophical statement. A literary critic might share Tanner's view that Leavis overrated *St Mawr* yet still see what it was in that tale that had attracted such a response; but Tanner's philosophy would exclude such considerations – or so it seems. The issue was not finally argued out in this exchange: instead Tanner suggested that if Leavis had gone to the late Wittgenstein, from the *Blue Book* onwards, he would have found there, rather than in Marjorie Grene, a detailed working-out of solutions to the questions he was dealing with.

So far as one knows, Leavis did not, but the shadow of Wittgenstein the man falls more than once across these pages. One of the best pieces is a spirited memoir of him, which makes one wish that Leavis had devoted more time to evocation of the past. He admired Wittgenstein as an intelligence, regarding him as one of the two geniuses that he had known (the other being Mansfield Forbes?). Yet the essay throbs softly with an insistence of self-definition in opposition to him, beginning from the time when he came across him at one of W. E. Johnson's tea-parties and rebuked him for his crushing behaviour to a young man who was singing German *Lieder* in a poor accent – to be met with the unexpected reply: "We must know one another".

The other central anecdote in this essay transports the reader into another world: a Cambridge where Leavis and Wittgenstein could hire a boat in the evening, walk across fields and see, late at night, lights which Leavis identified as coming from Trumpington Feast. Wittgenstein was all for going; Leavis reminded him that it was now 11 o'clock and a boatman was awaiting their return. Wittgenstein acceded with a rather bad grace and when reminded later that the boatman had had to wait two hours for them alone said simply, "I always associate the man with the boathouse". Leavis recalled "You may, but you know that he is separable and has a life apart from it."

The implication of these anecdotes would seem to be that although Wittgenstein found other people deeply interesting he did not really appreciate their right to exist from a centre of their own – with, presumably, the further implication that Leavis himself did. Wittgenstein, in other words, was right to say that Leavis had "character", but only if he was not using the term in its inert Victorian sense. To Leavis, to have "character" meant not simply to take up a firm stance in relation to the world but to live from a recognizable (if not definable) centre. The neo-classicism which gave him his character was matched by a belief in the spontaneous that drew him to the romanticism (or rather counter-romanticism) of D. H. Lawrence.

F. R. Leavis

What kept Leavis's idea alive, however, was his insight into Johnson's further greatness – his belief that it was possible to make serious statements which would apply not only to the group that formed his readership but to the whole of humanity. So too with Leavis: the elitism which focused itself in his constant promotion of "intelligence" as a major human value was based on a belief that the intelligence of the greatest geniuses was something not isolated from humanity but embodying a profound realization of what it was to be human. To some degree the two things became mutually self-defining for him; so that the mark of intelligence became identified with the ability to entertain and project this complex sense.

One result was to give him an illusory attractiveness to various groups among his contemporaries. In politics, conservatives and socialists might for opposite reasons be attracted to his ideal of a society with a shared culture, only to discover that their own particular groups did not meet his requirements. But given what group could? An article by Perry Anderson in the *New Left Review* (1968) made the point forcefully. In literature, equally, neither the pure neo-classicists nor the Lawrence-devotees could count on his undivided support. But the most important effect of his attitude was to make him unashamedly an elitist in education, arguing that the expansion of higher education was a mistake and that the only hope lay with small groups of the intelligent and the concerned. This made him an ambiguous hero for those who were inspired by his writings to move into education, most of whom must have found themselves forced in some way to move away from the purity of his position. The most successful of those who learned from him proved in fact to be those who took a beating from him but then moved into an orbit of their own.

Leavis was better at dealing with such questions, in fact, when he was doing the things he was good at. When he comes to explain what it is that literary critics do, and which philosophers cannot, he draws the picture of an intellectual activity that is not one of argument or logical demonstration:

> Putting a finger on this and that in the text, and moving tactically from point to point, you make at each a critical observation that hardly anyone in whom the power of critical perception exists, or is at least strongly potential, wouldn't endorse ('This is so, isn't it?'). The ideal is (not usually for the critic, in important cases, a remote one) that when this tactical process has reached its final stage, there is no need for assertion; this 'placing' judgment is left as established.

It is a crucial passage for anyone wishing to understand what Leavis was about: the scrutiny of a passage with a critical eye, the seizing of this and that point, and so, implicitly, to the establishing of judgments that will be shared by anyone who has followed the process intelligently.

In the background of that argument, however, there remains a presupposition that becomes explicit when Leavis prefaces *The Common Pursuit* with the epigraph from Johnson concerning "the common pursuit of true judgment". It is that "true judgment" is not only something to be found in a common endeavour by critics, but that it is the only goal worth aiming at. Beyond a certain point that presupposition is bound to be false. We may all agree that at certain high points of achievement writers show extraordinary qualities of concentrated intelligence, and that at such moments they seem to transcend the bounds of their context and speak to all human beings; it is Leavis's particular achievement to have drawn attention, again and again, to such points. It is also true, however, that few if any writers can create consistently at that level, and that many will have a quite honourable desire to speak in terms of their society and its problems. Here critics and scholars will begin to disagree about the value of the enterprise; but in doing so they will open up areas that would otherwise have been cut off by the barriers of critical judgment.

The effects of firm extractions and isolations, whether made by Leavis himself or by others from his own work, can be deadening. It is the same with the effect of the pointing finger, the characteristic "There!". It is modelled upon Arnold's concept of the touchstone, by which the critic discovers the single line or the single poem and holds it up for a testing which will also be a proving. As in Arnold's time, such a method can easily turn into a paradoxical aestheticism which is far from the critic's original intention but which ministers to the desire in the minds of many readers for points of fixity and certitude.

The essay on Blake illustrates the point well. Leavis first aligns *Poetical Sketches* with Shakespeare, then demonstrates how the poet achieves his own voice in *Songs of Innocence and of Experience*. Blake's work he also sees as enacting a necessary revolt against the Augustan view that poetry consists primarily of statement. Yet in this essay the limitations of his approach are glimpsed again. At the beginning he declares roundly, "There isn't any book one can recommend as a guide, either on Blake in general, or even on *Songs of Innocence and of Experience*." Later he attacks more specifically the approaches of Yeats and Kathleen Raine:

> The notion that by a devout study of Blake's esoteric wisdom and symbolism a key can be found that will open to us a supreme esoteric wisdom is absurd; and to emphasize in that spirit the part played in his life's work by Swedenborg, Boehme, Paracelsus, Orphic tradition, Gnosticism, and a 'perennial philosophy' is to deny what makes him important.

Certainly to maintain that there is a fixed schema behind Blake's poetry which, once learnt, will make everything plain, would be perverse: it would be to deliver him by a devious route back into the world of Augustan statement. To that extent one can agree with Leavis. But whether intentionally or not the effect of such strictures must be to direct attention away from a moment of enlightenment in the late 1780s and early 1790s which was awakening not only to Blake and the young Coleridge but to many of their contemporaries and successors. If one agrees with Leavis's support for a movement "of life against dead nature, and of understanding as against the calculi of logical machines", one must also contend that in such a context the visionaries are on the side of life rather than of death.

At such moments Leavis is always in danger of becoming entrapped in an intellectual (and again paradoxic-al) provincialism. To dwell only on those passages of Blake which deal directly with human life is to miss the full complexity of his achievement, including his search for an adequate metaphysic to replace the one he found in Locke and Newton. Leavis's critical apergus, ignoring such questions, run the risk of degenerating into the "sterile round" which Blake abhorred.

The point bears also on Leavis's writings about education. With judgments so made and so enforced, it is natural for a reader to assume that he is being directed to the only texts that matter. The logical effect would be a course of reading that would consist of the two sets of Blake's lyrics, Wordsworth's "Ruined Cottage", a few poems by Hopkins and a few by Hardy, the "good" part of *Daniel Deronda* and a rather more generous selection from Lawrence. Year after year new groups of students would come to the university to be taken through the same reading list and brought to the same points of judgment – with perhaps a few adjacent passages in each case to make the point.

Leavis would of course have found such a picture unfair. "The view, I suppose, will be . . . confidently attributed to me that, except Jane Austen, George Eliot, James and Conrad, there are no novelists in English worth reading," he remarked acidly at the outset of *The Great Tradition*. But when judgments are made with his kind of confidence and strength it is difficult for all but the strong-minded to find a way beyond them. Despite Leavis's insistence that he was looking not for dogmatic statement but dialogue (as in his favourite formula for critical exchange, "This is so, isn't it" "Yes, but . . ."), there was always a tendency to maintain his judgments with a force which might suggest that something other than dialogue was the desiderated response.

For this reason one warms most to Leavis when he is insisting on the need for intellectual cooperation and envisioning the pursuit of the judgment as a continuous and never-ending process, rather than as a military operation in which agreed positions are to be strategically approached and encompassed. Indeed, the most interesting statement in the whole book comes in the preface, when the editor says that in his later years he became increasingly concerned with Wordsworth, devoting many notes and comments to him. For Wordsworth's stance matches the forward and backward-looking faces of Leavis himself. Wordsworth too was looking for the possibility of a human community which would subsist in honest feeling and moral responsibility; he, equally, was concerned to keep continuity with the past. As with Leavis also, his forays into a literature of spontaneous feeling were made with a sense that Dr Johnson was looking over his shoulder.

Leavis, looking for the points of vitality, rejected Wordsworth's poetic Persona in favour of the man who subsisted beneath and was the most intelligent of the poetry. Whether he went further, to see the full drama of a man living through a time when the foundations of western society were shaking and to whom therefore the need was for revision and reconstruction, for reconciling the energies of the present with the certitudes of the past, we shall see only when his notes are brought together in the future volume that is promised. Whatever form it takes, however, Leavis's criticism of a man who like himself was, at his best, "no slave / Of that false secondary power by which / In weakness we create distinctions, then / Believe our puny boundaries are things / Which we perceive, and not which we have made", should be mutually illuminating.

John Beer is reader in English at the University of Cambridge.

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circumstance 8 n.
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BOOKS

Union struggles

Trade Unionism in Germany from Bismarck to Hitler 1869–1933
volume one: 1869–1918;
volume two: 1919–1933
by John A. Moses
George Prior, £25.00 the set
ISBN 0 86043 450 8 and 483 4

This is not an institutional history of the German trade unions, but a history of German trade union theory, of ideas and controversies about the role of trade unions under capitalism and their relationship to working-class political parties aiming to achieve a socialist society. The actual successes and failures of the unions are not systematically presented; they are rather brought in to illustrate the author's argument.

German trade unionism was retarded in its development, in comparison to its British counterpart, by the fact that freedom of association and assembly was far more restricted in the majority of German states than it was in Britain. The federal legislation which followed the establishment of the North German Confederation in 1867 guaranteed this freedom in principle, but, as Dr Moses shows, growing and successful trade union activity was countered by new repressive state legislation. Moreover, under Bismarck's Anti-Socialist Law, which was in force from 1878 to 1890, a nationwide central organization of the unions was illegal.

Equally important as a retarding factor in German trade unionism was the widespread Lassallean notion of the "iron law of wages" under capitalism, which was thought to condemn nearly all trade union action to futility in the long run. The contrary view of Marx, that trade union action was legitimate and necessary, because the experience it provided made workers into socialists (though not always into fully conscious ones), was not common even in the party founded by Marx's followers in 1869 at Eisenach. Hence, when the Lassalleans and Eisenachers formed a united socialist party at the Gotha congress in 1875, Lassallean views on the limited possibilities and ultimate futility of trade unionism remained widespread.

When trade union leaders like York, Hillmann and Legien strove for a better appreciation of the importance of trade union organization and action among the party members, they were undoubtedly acting in the spirit of Marx. Nevertheless, their success and the use they made of the growing strength of the unions after the fall of Bismarck and his Anti-Socialist Law in 1890, also weakened the Marxist character of the Social Democratic Party. For while Marx believed that a working-class political party must have its feet firmly based on a vigorous trade union movement, he did not believe that its head (that is, the party's policy making) should be controlled by the trade unions. But the Mannheim Agreement of 1906, with its trade union veto over particular items of party policy, opened the way to trade union control over party policy as a whole.

This is illustrated by the socialist debacle of August 1914. The General Commission, the central trade union organization made possible by the lapsing of the Anti-Socialist Law, decided on August 3 not to risk the limited freedom of action and legality the unions then enjoyed by declaring opposition to the war, and to observe a civic truce vis-à-vis the imperial government. This decision, arguably justifiable in a trade union context, in effect pre-empted the Social Democratic Party's decision on August 4 to support the war, even though the criteria underlying such a decision are by no means identical for trade unions and for a political party. Dr Moses oversimplifies this issue by presenting it merely as a dispute between unrealistic party theorists and practical trade unionists.

Dr Moses's account of the war years is unbalanced. He confines himself to the imperial patriotism of the official union leaders and to their reward in the form of limited recognition by government and employers. He likes not deal with the growing unofficial trade union opposition, linked (as in Britain) to the great influx of semi-skilled labour into the factories, which produced its own leadership of local shop-stewards who were to play a significant role in the German revolution of 1918.

The analysis of developments during the Weimar Republic is more balanced, and some of the material adduced is fascinating for the present-day analogies it provides. The German trade unions gained a great deal from the collapse of the Bismarckian order and the revolution in 1918. They secured the unrestricted right of association and assembly which they had so long fought for, the eight-hour day, the repeal of the Prussian Master and Servant Act, which had made unionism almost impossible in areas like agriculture, the right to collective bargaining, and at least the organizational framework for the exertion of trade union influence both on national economic policy and on company management. Moreover, when a group of reactionary army officers tried to establish a military regime in March 1920, it was the trade unions who found in themselves the initiative and the strength to defend the new democratic constitution by means of a political general strike, a feat rarely matched by any trade union movement since.

These successes and the struggle to defend them widened the political horizons of the movement. While the political left was engaged in an increasingly damaging and sterile dogmatic dispute, the trade union federation played a decisive part in working out what would now be called a "Left programme" designed to consolidate and extend their gains through the democratization of the economy. It was hoped that the Social Democratic Party would see economic democracy as an important stage in the advance to socialism.

Unfortunately the programme made little impact on the warring social democratic and communist sections of the left, but it did arouse fierce hostility among all sections of the right. In this situation, the employers were able not only to block the trade union programme, but to take advantage of the onset of depression and mass unemployment to undo most of what the trade unions had achieved since 1918. Dr Moses shows that in rejecting the trade unions' proposals for counteracting the depression and expanding employment, the right-wing governments of Brüning and Papen anticipated most of the arguments advanced in our time by Milton Friedman and his disciples.

Dr Moses's subject will be generally recognized as important and interesting. Readers concerned with the problems of trade unionism, their difficulties in times of economic depression, and their potential role in the transition to socialism, will certainly learn much from the historical perspective which his material offers, even if, like myself, they feel disinclined to share his indulgence for the shortcomings and failures of the German trade union leaders.

Ernst Wangermann

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The baron's revenge

Zabern 1913: consensus politics in Imperial Germany
by David Schoenbaum
Allen & Unwin, £12.50
ISBN 0 04 943025 4

"A dull town with 8,300 inhabs." was Baedeker's description of Zabern. In the autumn of 1913, however, events in the Alsatian garrison town attracted headlines throughout Europe and beyond when the local inhabitants, stirred by the insensitive behaviour of a young lieutenant, vented their anger and found themselves on the receiving end of summary actions by the army. The office of a critical newspaper was illegally searched and around thirty arrests were made for "insolent" behaviour.

The incident is ritually invoked by textbooks, and historians in both East and West Germany have written on it at greater length. The episode has usually been seen as symptomatic of the brittle and desperate state of prewar Germany, and especially of the dangerous place occupied by the army. David Schoenbaum's genial and thoughtful new monograph by no means subverts this view. As he says of the evening which signalled the climax of the incident, "it was a baron's revenge on the common folk, a lieutenant's on undeferential recruits, the army's on refractory civilians, Prussia's on Alsace, all at once."

Schoenbaum provides an excellent background examination of these strands, before turning to a lively account of the events themselves and their aftermath. Here he shows the overall success of the military in not backing down and admitting error in the ensuing row. The Minister of War blamed everything on "screaming mobs and yellow journalism", while the Kaiser characteristically listened only to military advice and set his face against any public concessions to ruffled Alsatian feelings or the outraged parliamentarians of the Reichstag. Consequently both the liberal-minded governor of Alsace and the nice-minded Chancellor Bethmann Hollweg were left politically in the lurch.

New depth and half-tones have nevertheless been added to the familiar picture. Schoenbaum has an excellent eye for detail, nowhere better displayed than in his spirited evocation of Alsatian peculiarities. He shows, for example, how ironically atypical Zabern was as the most "German", protestant and politically conservative town in the province. Moreover, by reminding us that it was, among other things, significant that Zabern did actually become a *cause célèbre*, Schoenbaum directs attention also to the importance of press, public opinion and political parties in Imperial Germany. At the same time he has penetrating observations on the ultimate failure of the parties to sustain the united front they showed in the parliamentary debates of December 1913, partly from fear of becoming too identified with the critique of the Social Democrats, partly because of long-standing divisions, partly from habitual impotence compounded by opportunism. Again, discussing the difficulties of the German polity on the eve of war, Schoenbaum is aphoristically on target when he suggests that the problem was less a failure of checks, more a proliferation of balances.

A great strength of this book is its willingness to address major questions and to make bold trans-national comparisons – not always to the disadvantage of Imperial Germany. So we have the army usefully compared with armies elsewhere, and Schoenbaum's well-argued contention that it was not the German army in itself (recruitment, ethos) which was notably different, but the civil-military relationship. The parallels between Alsace and Ireland are similarly well-sustained.

Above all, however, Schoenbaum salts his account with American parallels. Some of these are familiar (East Elbia and the Deep South); and some, it must be said, are tortuous (Bismarck and Jefferson Davis). Yet the deeper awareness by a very good American historian of Germany of what has happened to a different Imperium closer to home, and untouched by spiked helmets, has for the most part a positive effect in forcing us to reconsider the balance of "modernity" and "non-modernity" and their roles in modern German history. This argument continues to be warmly debated by historians; Schoenbaum's well-written and perceptive book will no doubt help to keep it on the boil.

David Blackbourn

David Blackbourn is lecturer in history at Birkbeck College, London.

BOOKS

Medieval logic

On the Threshold of Exact Science: selected writings of Anneliese Maier on late medieval natural philosophy
edited and translated with an introduction by Steven D. Sargent
University of Pennsylvania Press, £16.50
ISBN 0 8122 7831 3

Studi Sul XIV Secolo in Memoria di Anneliese Maier
edited by A. Maierù and A. Paravicini Bagliani
Edizioni di Storia e Letteratura, Italian lire 40,000

There can be no doubt that the serious study of the history of medieval science was initiated by Pierre Duhem (1861–1916).

While professor of physics at Bordeaux he published within little over a decade a remarkable series of studies which completely revised our understanding of the physical sciences during the Middle Ages, and which even today remain fundamental tools for all historians of early science. Duhem worked alone, having no students to continue his historical researches, and not until 20 years after his death did the history of the physical sciences in the Middle Ages once again become subjected to serious inquiry.

Just before World War II Anneliese Maier (1905–1971) having recently taken up residence in Rome where she was to stay for the remainder of her life, began to make use of the abundant manuscript resources of the Vatican Library to study the development of natural philosophy during the fourteenth century. Her intense research resulted in a number of publications, the majority of which were gathered into a series of five volumes collectively called *Studien zur Naturphilosophie der Spätscholastik*. While a number of other scholars, particularly in North America, have taken up the study of medieval science in a serious way during the past 40 years, no one has made so fundamental a contribution to our understanding of the field.

Maier came to her subject trained as a philosopher (her doctoral thesis was on Kant), and that approach is evident throughout her work. More than Duhem she was able to relate medieval scientific discussions to the philosophical context in which they were embedded and seldom, unlike Duhem, fell into the trap of unduly modernizing the medieval accomplishment or claiming too much for the medieval writings she was studying.

She was a much more careful thinker and worker than Duhem, who as a pioneer in the field was sometimes over enthusiastic about his findings. Maier was able to refine, clarify, and expand upon many of the points which Duhem had previously isolated as touchstones for later science. By the 1950s, the history of medieval science began to emerge as a recognizable discipline, principally through the efforts of Maier and of Marshall Clagett in the United States, who was preparing a whole generation of scholars at his University of Wisconsin seminars.

Whatever has been done during the recent decades on this subject, the detailed and careful studies of Anneliese Maier still stand at the forefront of current research. Her work is well known and highly respected by specialists in the fields of medieval science, philosophy, theology and logic, but on the whole her writings have not reached a wider public. This is unfortunate above all to two factors. Firstly, her dry, matter-of-fact style is not compelling reading and she makes few concessions to the non-specialist. Secondly, nearly all of her writings are in German (a few are in Italian), and those not able to read a third language have had to view her accomplishments as closed books. Therefore it is satisfying to see several of her main essays translated into clear and readable English.

The selections made by Steven Sargent should introduce her work to a wider audience, and his brief, but informative introduction will serve to place her contribution in a general context. Among the essays chosen for translation is a central piece on the philosophy of motion, two on the concept of "impetus" (the medieval predecessor of inertia), another on the medieval theory of elements, as well as one of her more expansive pieces which deals with the achievements of late scholastic natural philosophy. These form a handsome volume to introduce new readers to her work.

Shortly after Dr Maier's death, plans were made to prepare a volume in her honour. I myself contributed an essay, but the proposed memorial did not come to fruition before the untimely death of its initiator, Giorgio Tonelli. It is certainly a pleasure finally to see a proper tribute ten years after Anneliese Maier's death, edited by Maierù and Paravicini Bagliani. The new volume appears with Maier's own publisher, and is of the high scholarly standards we have come to expect from it. The book rightly concentrates on the fourteenth century. The introductory essay by J. E. Murdoch and E. D. Sylla evaluates the dedicatee's contribution to our understanding of medieval science and provides a useful supplement to Sargent's introduction to his volume. The other essays (in English, French, German and Italian) range from an attempt to provide a general interpretation of the fourteenth century by H. A. Oberman, to studies based on unpublished manuscript sources by some of the foremost students of medieval intellectual history. Much of the material presented here is directly based upon the work of Maier, and the field which she did so much to open. The strong emphasis on late medieval logic indicates one of the directions which research has taken in recent years.

After reading these two volumes and dipping into the eight volumes containing Anneliese Maier's major contributions to learning, one is left with the impression that her works will survive as basic sources for the study of late medieval thought. Upon reflection it is interesting to compare her with Alexandre Koyré (1892–1964), widely reputed for his work on early modern science.

Koyré wrote easily in an attractive and compelling style, whether in English or French. His major thesis, which has been widely accepted, is that modern science came through the Platonic tradition and had little to do with either experiment or Aristotelian scholasticism. Koyré's thesis proved attractive to the generation of historians of science educated in the 1950s and 1960s. In the past decade a number of questions have arisen, not least of all the mounting evidence that there was more experiment in the mature Galileo than Koyré ever expected or, at least, admitted. At the same time evidence for a scholastic, Aristotelian component – sometimes even embedded in a theological context – in Renaissance and early modern science has become increasingly apparent.

One wonders whether Maier was not closer to the right track, and more methodologically sound. It would not be wholly surprising if her work posthumously gained a broader influence than it had during her lifetime. In any case her approach, based upon an extensive reading of unpublished sources, offers an attractive alternative to Koyré's sometimes unduly aprioristic speculations concerning the origins of modern science.

C. B. Schmitt

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Modern medicine

A Short History of Medicine
by Erwin H. Ackerknecht
Johns Hopkins University Press, £6.00
ISBN 0 8018 2726 4

For a long time medical history was an adjunct to the activities of medical men. Even where the subject was taken seriously, as in Germany, its exponents generally had a medical training to add to often impressive other qualifications. It seemed natural enough, after all, that a technical subject should have had a technical past and should need an expert to investigate the past. Indeed, this is the reason why historians in general have so long avoided medical and scientific history. And we must accept that it is one of the functions of medical history to help us understand modern medicine.

It is therefore the doctor looking back to explain the present who has determined the shape of traditional medical history, of which Ackerknecht's book is an example (this position is made clear in an introductory essay). To investigate its past, the doctor takes the salient characteristics of modern medicine, and in particular, these three: modern medicine is *effective*, in particular, for example, in controlling some infectious diseases; it is *progressive*: we expect it to become more effective; it is *scientific* in relying on techniques and knowledge that the doctor believes to be rational and objective. All three features are seen in Ackerknecht's treatment of Pasteur and Koch, and all relate historically to modern medicine.

But how much further back in time can we push the method of looking for the characteristics of modern medicine? Can we see the distant origins of effectiveness, progress and science? The answer implicit in Ackerknecht's book is yes, if we look hard enough. Sometimes this is difficult, and medieval medicine for example is for Ackerknecht "sterile" and "unattractive" (he does not mean it was not practised vigorously, but that it was static and "unscientific".) Accordingly medieval medicine is dismissed hastily, and in an unsatisfactory chapter. There were of course flashes of light even in the darkness of the middle ages, as when the Salernitan treatises make "interesting references" to the use of mercury in skin diseases. By "interesting" Ackerknecht means "modern-sounding" and the fact is added to the collection of things that make up his historical picture.

This collection is the crux of the matter. Whether flashes in the dark or full-blooded "contributions", these modern-sounding fragments of historical evidence can always be arranged in such a way as to point collectively to modern medicine. Both the selection of the fragments and the method of arranging them are determined by the doctor's notion of the nature of modern medicine, so it is not surprising that we see an inevitability and even a causality in such an account of the evolution of modern medicine. Medicine's history then begins to look as if medicine has been a grand and good collaborative venture, the contributors held back only by their historical circumstances.

When modern medicine made its "famous Declaration of Independence" (the statement of the Hippocratic *Sacred Disease* that the disease was not sacred) the battle was fairly joined; the frontier against myth and supernaturalism was pushed back, revealing objective knowledge. There were occasional reverses (iatrophysics, iatrochemistry, Paracelsus) but the good guys won in the end. By anyone other than Ackerknecht, this would be cowboy history.

But cannot this interpretation be justified by reference to another and important criterion? After all, the human body, with its structure, function and malfunction was there all the time, just as it is available to us; if our knowledge is more correct than theirs, it is because it is more rigorously derived from the body; and insofar as they examined the body their ideas about it must be measured on the same scale.

This of course is nonsense (because the objectivity of this knowledge is ours, not theirs) but it seems to be what Ackerknecht has in mind when he says, for example, that Archigenes "made a praiseworthy attempt to differentiate between primary and secondary phenomena of disease", and of the ancient Indians that they "try to differentiate abscesses from tumours". We are also told that, in a similar manner, Galen also failed in his attempt to separate two of what are in fact *our* categories. Galen, of course, was doing no such thing: if he knew of the distinction his attempt would not have failed, and if he did not, there was no reason for him to make the attempt. One suspects that the ancient Indians, Archigenes and Galen were all engaged upon quite different enterprises which were not so easily and attractively modern-sounding and which Ackerknecht does not tell us about.

This book of Ackerknecht's is a textbook, having appeared in at least two previous editions and languages. As a textbook should, it covers a lot of ground. As a good textbook should, it defines broad periods of medicine – library, bedside, hospital and laboratory medicine – that have been widely adopted as categories within the subject. But as an established textbook, it is now distinctly old-fashioned. And nowhere more so than in Ackerknecht's examination of these broad periods in terms of the history of the scientific nature of modern medicine.

Having compiled his history of medicine from the selectively chosen positive fragments of evidence, Ackerknecht is left also with a profile of historical negatives that militated against the evolution of modern medicine. For example, modern medicine is "rational" in employing reason; Ackerknecht, however, does not employ "reason" in its historically neutral meaning, but to indicate reason that came up with the right (that is, modern) answers. Old reasoning thus becomes the negative "speculation", sometimes idle and always sterile; or, if particularly successful and long lived, it is "dogmatism", a pejorative term that Ackerknecht uses because it also indicates the absence of the progressive feature of modern medicine.

Roger French

Roger French is Director of the Wellcome Unit for the History of Medicine, University of Cambridge.

Valid consent

Philosophy in Medicine: conceptual and ethical issues in medicine and psychiatry
edited by Charles M. Culver and Bernard Gert
Oxford University Press, £15.50
ISBN 0 19 502979 8

Recent interest in the philosophy of medicine, first in the United States and increasingly in this country, has been good both for medicine and philosophy.

It has been good for medicine in that it is leading slowly to the realization that not all of those non-medical academics who discuss medical matters are hostile critics or Old Testament prophets of the Ivan Illich variety; that there can be fruitful cooperation between the medical profession and philosophers; and even that it might be a good thing for medical education if at least some doctors were able to include within their curriculum a study of the broader humane dimensions of their subject. It has been good for philosophy, especially moral philosophy, in that many of the traditional problems of moral philosophy have had to be re-thought in the context of real issues.

In the past moral philosophy has been illustrated by fanciful or trivial examples, on the grounds that profound or important problems can divert us from the philosophically central concern with the logical or the conceptual. The rebirth of moral philosophy within medicine brings out the impossibility of discussing philosophical problems about morality without discussing at the same time what it is about them that makes them important or profound. The moral philosophy which is the outcome of the pain and complexities of medical experience need not be any less lucid than that based on returning borrowed books or watching cricket matches but it is much less likely to overlook important features of moral experience.

These points are illustrated in this book, which is a cooperative enterprise by a professor of psychiatry who is also an adjunct professor of philosophy and a professor of philosophy who is also an adjunct professor of psychiatry. The authors make the point that their cooperation has been aided by their proximity at Dartmouth College in Hanover, New Hampshire, an advantage which the more usual institutional arrangements deny most of us.

Philosophy has traditionally been concerned both with the analysis of concepts and ideas and with their synthesis, where that means the attempt to unify the apparently disparate by bringing out the underlying links in concepts. Both strands in philosophy are illustrated in this book. There are analytical discussions of rationality and irrationality, valid consent, paternalism, involuntary hospitalization, and of the definitions and criteria of death. These discussions may stimulate controversy. For instance, in their analysis of rationality and irrationality the authors make irrationality the basic concept. The reason given for this is an asymmetry between "rationality" and "irrationality" in respect of their normative force.

The argument is that to call an action or belief "rational" is not necessarily to advocate it since more than one action or belief might be rational in a given context, and moreover, the "rational" might still be the immoral, whereas to call an action or belief "irrational" is always to speak against it. The authors conclude from this that since in this way irrationality has the clearer normative force it must be the more basic concept, and consequently they seek to define rationality in terms of irrationality.

This reversal of the traditional philosophical line on the priority of these concepts is interesting in that it brings out a tension not infrequently found in the philosophy of medicine between the need for relevant application and the need for theoretical coherence. For supposing we concede that "irrationality" has a clearer normative force than "rationality" it would not follow that it is a "more basic" concept or that we should seek to define rationality in terms of irrationality. All that would follow is that psychiatrists, in view of their practical concerns, are more likely to be interested in the irrational than the rational, and the theoretical analysis of what it is to be rational would still remain a task for the philosopher.

The synthetic side to philosophy is also well illustrated in the book. For example, in medical literature the terms "disease", "injury", "handicap", "sickness" and similar words are used in confused ways, and there is a notorious problem as to the connexions, if any, between physical illness, etc, and mental illness. The authors adapt and give a precise definition to the term "malady" which brings out links among the terms in this important set of medical concepts and as a result enables us to acquire not only a better understanding of their interrelationships but also a better understanding of the relationship between physical and mental illness.

All the philosophical arguments and analyses are well illustrated with clinical examples, and some of them at least are likely to provoke profitable disagreement. Rather than pick a philosophical quarrel, however, I shall draw attention to a practical point which the authors make, which is of the first importance for nurse education – that nurses are better suited than doctors by role and training to provide the sort of information patients need for valid consent to treatment. Nurses are less likely to overwhelm the patient with irrelevant technical details and may have a better understanding of what the patient is likely to want to know. Patients are also more likely to confide in nurses than doctors. In view of this, those concerned with nurse education, perhaps especially with the graduate nurse, might consider emphasizing the role of the nurse as a communicator with patients, relatives and the public.

R. S. Downie

R. S. Downie is professor of moral philosophy at the University of Glasgow.

An assemblage of popular writings on various aspects of machine intelligence has been compiled by Donald Michie and published as *Machine Intelligence and Related Topics: an information scientist's weekend book* and published by Gordon and

BOOKS

Rigorous feedback

Pluto's Republic, Incorporating "The Art of the Soluble" and "Induction and Intuition in Scientific Thought"
by Peter Medawar
Oxford University Press, £12.50
ISBN 0 19 217726 5

No, *Pluto's Republic* is not a misprint. Originating in a neighbour's malapropism, it tickled Sir Peter Medawar's fancy, as a name for that Underworld to which he would consign all those who sin against the light of science, whether by despising its rationality or by invoking its name *for their own disreputable pussuits*.

Enthusiastically lambasted in the collected essays, reviews and short books which make up the present volume, such sinners make a motley crew. Therapeutic psychoanalysts are subjected to the same remorseless Last Judgment as IQ psychologists; practitioners of pseudo-scientific "scientism" suffer along with the practitioners of a "poetism" for which science is simply a brand of fiction; mystical theologians, predictive economists and prophets of technological doom endure a common fate. Not only would, in Medawar's view, "they none of them be missed"; *more positively, they obscure the* true character of science, as simultaneously an exercise of the imagination and a severe form of criticism.

Popper, very obviously, is Medawar's mentor. He is not troubled by Popper's critics who are, in his judgment, bogged down in technicalities. Lakatos and Feyerabend go unmentioned and Kuhn crops up only in one very characteristic passage. Scientists, Medawar tells us, admire Popper because he is so "practical". relates so readily to "thought at bench or shop-floor level". Kuhn, in contrast, appeals more to "those who work in the historical or literary *traditions of thought*". (Medawar means to be kind to humanists but has all the same a strong tendency to blame them when things go wrong, although in his preface he does take back his earlier suggestion that they must bear the responsibility for the British deprecation of applied science.) Kuhn, of course, took the opposite view that it is precisely at this "shop-floor" level that Popper fails to describe science, or to prescribe for it, that it is Popper who conceives science in too literary a fashion, too dramatically, too heroically.

My sympathies lie so much with Medawar as, in some eyes, to disqualify me as a reviewer. We have that strongest of all bonds of union: we share the same dislikes. But I wish that, in place of the repetitions inevitable in a collected volume – it *includes only one new essay – he had* taken the time to look more closely at Kuhn and the neo-Popperian apostates; his criticisms would have a special value, as coming from one who is himself so notable a scientist and *not* a mathematical physicist, that rare class of beings to whom the philosophy of science has devoted so much attention.

I shall take up three special points. The first is that Medawar leaves no real room for thinking which is imaginative but not either literary or scientific. (Popper does leave room for it, in his rather special concept of the "metaphysical".) Freud is a notable case in point. One can agree with Medawar about the horrors which are generated when psychoanalysts treat physical disorders as forms of neurosis; one can agree that the therapeutic claims of *psychoanalysis are more than dubi*ous. Yet Freud was for many of us one of the Great Awakeners; we still see the world differently as a result of having read him. I should not want to put him in the same category as the Great Soporifics, a class into which so many of Medawar's black beasts – and my own – quite naturally fall. On this theme, Feyerabend is instructive.

The second point is that even before Kuhn wrote, many of us were hard to convince that science was in all instances and at all levels either particularly imaginative or particularly critical. Some scientists, like some humanists, are useful drudges. They take up a problem which someone else has set for them and they solve it by using accepted facts and familiar techniques. No doubt imagination and criticism still play some part, as they do, indeed, if we are planning a visit to Yugoslavia, but what distinguishes such work as "science" is rather the kind of skills and knowledge it calls upon than its degree of daring. Kuhn is so far right.

A third point is that Medawar dis*tinguishes between literature and sci*ence at the wrong points. This is an important distinction for him because his criticism both of "scientism" and of "poetism" depends upon his being able to say when a scientific approach is, or is not, appropriate. Although Medawar does quote a phrase or two from Brecht, Shelley is his typical representative of literature. So he tends to make two assumptions. The first is that there is something describable as a "literary style"; the second that poetry does not, in the manner of science, synergistically conjoin imagination and criticism. On the first point, he remarks *of the kind of work we both abomin*ate, an indigestible stew of "non-sequiturs, digressions, paradoxes, impressive sounding references to Gödel, Wittgenstein and topology" that the authors of such pretentious nonsense are "in a literary sense, highly skilled". Surely they are not; the mock-profundity of their "thinking" is faithfully reflected in the clotted abstractions of their literary style. If one takes as one's exemplars Defoe, Swift, Jane Austen, Shaw, Brecht, the gap between their writing and that of D'Arcy Thompson, which Medawar greatly admires, is by no means obvious, although the vocabulary is naturally different.

On the second point, literature is not a mere effusion. So far like science, it demands rigorous feedback, self-criticism, and is subjected to the criticism of others. One can criticize a novelist, as one can a scientist, either as being unimaginative or as *being uncritical*, "self-indulgent". Medawar grants that Matthew Arnold extols criticism but sees in his remark that criticism is always secondary to creation a failure to realize that in science the two are interwoven. *But suppose one was the* librarian of the only library left on earth after nuclear war. And suppose that it was necessary, if the library were to be saved, to reduce it to five hundred books. Who would not save Shakespeare rather than Bradley, Darwin rather than his manifold critics? There are a few people – including Medawar himself – who are creative in the sense that most of us are not. That is all Arnold meant.

I do not think it has sufficiently emerged how much I admire Medawar's book. It is always clear, always lively, delightfully uncompromising, fundamentally on the right side. If it *sometimes invites a sceptical re*sponse by being too optimistic, too enthusiastic – nuclear warfare is nowhere mentioned in his defence of technology – one is ready temporarily to still that scepticism in a delight that so robust a temperament still survives.

John Passmore

John Passmore emerius professor of philosophy at the Australian National University, Canberra, and author of "Science and Its Critics" (1979).

On the move

Migration: paths through time and space
by R. Robin Baker
Hodder & Stoughton, £5.45
ISBN 0 340 26079 3

A few years ago a massive tome on animal migration was published, the first major synthesis for nearly fifty years: *The Evolutionary Ecology of Animal Migration*, Hodder & Stoughton, 1978. It was a controversial book and its author, Robin Baker, was finally established as the maverick of animal movement.

He argued that all movement should be encompassed within one general theory. The seasonal migration of swallows, the flight of a bee from one flower to another, even going upstairs to bed were all seen as *migration. In part this new book is a* condensed version of the earlier one, and virtually all the examples and illustrations are taken from it. There is also, however, a claim for a second and broader function, to champion the cause of behavioural ecology and the adaptiveness of behaviour at the expense of ethology.

As a summary of research on animal movement, the book is based on the premise that many species live within a familiar area which is built up by a process of exploratory migration and habitat assessment. A good case is made for the view that, through exploration, animals are familiar with areas far larger than biologists previously supposed. However, for related topics – population genetics, demes, kinship, dialects, inbreeding avoidance, optimal outbreeding – there is scarcely *a mention*.

Other sections are on the sensory mechanisms which animals use to migrate. Particularly illuminating are the chapters which draw out the distinction between a sense of location and a sense of direction and highlight the widespread distribution in the animal kingdom of the ability to use the Earth's magnetic field for navigation.

Most of these chapters are based on Baker's own work and include a summary of his remarkable findings on humans. We too can subconsciously detect the magnetic field and work out the compass direction of home, especially when blindfolded. However, after this research was first published in *Science*, an American team, with Baker in attendance, attempted to replicate his results. They failed and their results appeared later in the same journal. This book should have provided an ideal opportunity to discuss those negative findings in the context of his longer term studies and the suggestion that the compass sense is affected by magnetic storms. That there is no mention whatsoever is *extraordinary and a serious omission*, particularly when the book is intended as a student text.

At the second level, the book is replete with unrepentant anthropomorphisms and adaptive explanations. Animals are bestowed with the emotions and thoughts of humans, humans with the innate predispositions of animals. We are urged "to accept the genetic adaptiveness of behaviour as our paradigm – not least because there is not a single piece of critical evidence to the contrary despite the ingenuity of the far left". (Harvard professors of biology S. J. Gould and R. C. Lewontin are *identified as the far left.*) So, for example, if a rat has a genetic predisposition to forsake its family and migrate we need seek no further for the reason why young people leave home for university or the unemployed adolescent travels to London in search of that elusive job. Even "non-adaptive" human movements, such as the mass migrations from rural to urban areas in industrial societies with the consequences of higher mortality, poorer health and reduced fertility, are viewed as a genetic legacy of the past when, it is argued, such movements would have been adaptive.

The book is an excellent, often exciting, review of Baker's own research but a cavalier often inaccurate summary of other people's work. As an advertisement for behavioural ecology, some might claim it should be *reported to the authorities*.

Paul Greenwood

Paul Greenwood is a zoologist working in the department of adult and continuing education at the University of Durham.

A Sourcebook of Experiments for the Teaching of Microbiology has been edited by S. B. Primrose and A. C. Wardlaw and published by Academic Press at £28.80. The compilation attempts to provide a reservoir of experiments and exercises which highlight interesting areas, which undergraduates have found stimulating and which have been tried and tested by contributing teachers.

Henry Fletcher's mezzotint title-page for the Catalogus Plantarum published by the Society of Gardeners in 1730. Taken from The Illustration of Plants and Gardens, 1500–1850, by Vera Kaden, published by HMSO at £12 and £6.95.

Integrated virology

Virology
by Heinz Fraenkel-Conrat and Paul C. Kimball
Prentice-Hall, £24.70
ISBN 0 13 942144 0

The simple, uncompromising title of this undergraduate textbook accurately *reflects its comprehensive scope and* content. The entire range of contemporary virology from epidemiology to complete genome sequences is encompassed in a succinct and lucid style.

The authors' intention is to create a textbook of virology, which for the first time provides an integrated view of the whole of virology, breaking down the artificial barriers between animal, bacterial and plant virology which have arisen out of differences in methodology and historical development. This is particularly opportune at the present time when the advent of recombinant DNA technology and the potential of genetic engineering *are bringing these dis*tinct branches of virology together again. Fraenkel-Conrat's formative role in the development of molecular virology provides the appropriate insight and stamp of authority necessary for this endeavour. Not least of the values of this book is the highlighting of remaining areas of ignorance and uncertainty.

To achieve their aim within the limited confines of some 400 pages, Fraenkel-Conrat and Kimball assume a knowledge of elementary biochemistry, not an unreasonable requirement for anyone seeking an appreciation of the nature of viruses as presently understood. In fact the text is so clearly laid out that this stipulation need not deter any interested reader.

The book begins with a general chapter considering the history of virology, the *nature* of viruses, and how they are studied. This is followed by seven chapters dealing with the major groups of viruses, proceeding from the simplest, the non-enveloped plus-strand RNA viruses, through the enveloped plus-strand RNA viruses, the minus-strand RNA viruses, viroids, the double-stranded RNA viruses, the small genome DNA viruses, and culminating with the most complex group the medium and large DNA viruses. Animal, bacterial, fungal and plant viruses are considered together in terms of the complexity of their genetic organization and function rather than their host of origin. The last four *chapters deal with the effect of* viruses on their host at the level of the cell, the organism, and the population. The text is illustrated with good line diagrams and excellent electron micrographs (mostly attributable to R. C. *Williams*). Finally, there is a good index and an adequate but rather superfluous glossary.

The authors adopt the device of including references to recent papers and reviews at the end of each section to enable them to dispense with detailed accounts of experimental procedures which might rapidly become out-moded. This would seem to be no more than a temporary protection against obsolescence, although it certainly does no harm. The referencing is rather arbitrary and on occasion unfortunate, as in the case of the theory of kinase cascades in regulation of cellular metabolism. Overall, however, the text is commendably up-to-date with few important omissions, except perhaps a failure to consider the impact of the increasing availability of monoclonal antibody on virus research.

There is inevitable unevenness in the treatment of different topics due to the varying levels of familiarity of the authors with particular virus types and the diversity of the viral systems themselves. A reader interested in herpes viruses might feel justifiably aggrieved by the fact that in a book containing the complete *nucleotide* sequence of the potato spindle tuber viroid and of the papovavirus SV40, the only representation of any herpes virus genome consists of a thick double-line drawn by an unsteady hand.

C R. Pringle

C. R. Pringle is a member of the scientific staff of the MRC Virology Unit at the Institute of Virology, and an honorary lecturer at the University of Glasgow.

NOTICE BOARD

Noticeboard is compiled by Patricia Santinelli and Mila Goldie

This set of ivory bagpipes and wood bellows dating from around 1800 is one in the internationally-renowned collection of historical musical instruments housed at the Royal College of Music, London. They are covered in red velvet, trimmed with silver lace.
The collection includes some 500 keyboard, wind and stringed instruments from the sixteenth to the twentieth century, a spinet used by Handel and a clavichord used by Haydn.
The picture is in the first catalogue of the collection, just published, by E. A. K. Ridley, available for £4 plus postage from the college in Prince Consort Road, South Kensington, London SW7 2BS. The collection can be seen on Wednesdays from 11 am to 4 pm.

Chairs

Professor M. G. Audley-Charles, professor of geology at Queen Mary College, has been appointed to the Yates-Goldsmid chair of geology at University College, London.

Professor H. Bohrow, professor of human genetics at the University of Amsterdam, has been appointed to the Prince Philip chair of paediatric research at the United Medical Schools of Guy's and St Thomas's hospitals.

Professor W. A. Gibbons, professor of biochemistry at the University of Wisconsin, has been appointed to the chair of chemistry at the School of pharmacy.

Professor J. E. Hamilton, director of the Caribbean Epidemiology Centre, Port-of-Spain, Trinidad, has been appointed to the chair of community medicine at the London School of Hygiene and Tropical Medicine.

Professor R. McIntyre, professor of medicine at the Royal Free Hospital School of Medicine, has been promoted to the chair of medicine with effect from October 1, 1983.

Professor M. Macedo, lecturer in Portuguese at King's College, London, has been promoted to the Camoens chair of Portuguese.

Professor D. L. Miller, professor of community medicine at the Middlesex Hospital medical school, has been appointed to the chair of community medicine at St Mary's Hospital medical School.

Professor W. L. Twining, professor of law at the University of Warwick, has been appointed to the Quain chair of jurisprudence at University College, London from January 1, 1983.

Dr N. C. Tynan, consultant paediatric cardiologist at Guy's Hospital, has been appointed to the Joseph Levy chair of paediatric cardiology at the United Medical Schools of Guy's and St Thomas's Hospitals.

Dr R.A. Wood, reader in anatomy at the Middlesex Hospital Medical School, has been appointed to the S. A. Courtauld chair of anatomy.

London

The following have been awarded the title of Professor at London University:

Dr John Robert Bloom (endocrinology), Royal Postgraduate Medical School.

Dr Richard Viktor Boyd (organic chemistry), Queen Mary College.

Dr Patrick Arthur Browerton (rheumatology), Westminster Medical School.

Dr Graham Frank Bryant (control engineering), Imperial College.

Dr Robin Diamond (geography with special reference to urban and regional planning), London School of Economics.

Dr Edmund Leonard William Francis Eddleston (liver immunology), King's College Hospital Medical School.

Dr Alan Charles Whitmore Evans (plant chemistry), University College, London.

Dr Malcolm Greenhalgh (surgery), Charing Cross Hospital Medical School.

Dr Abdus Salam Isham (theoretical physics), Imperial College.

Dr Godfrey Lappington (applied mathematics), Imperial College.

Dr Richard William Mottram (English and American literature), King's College, London.

Dr Ian Sharman (fund theology), Queen Elizabeth College.

Dr Alasdair Wastell (surgery), Westminster Medical School.

Dr John Zeitlich (public law), Queen Mary College.

Appointments

Universities

Bath

The following officers: Mr F. R. Nash, Mr D. J. M. Gardiner (social science and humanities); Dr J. Pick (arts administration); Mr G. B. Wood (banking and international economic registrars); Dr A. H. Seville (present and future academic registrar), Mr R. V. Fox (present and future librarian).

London

Professor Thomas Cavalier-Smith (biophysics), King's College, London, George Phocas Coumbis (management science), Imperial College, Professor Bruce Flavell (management science), Imperial College, Stephen Roderick Hill (statistics), London School of Economics, Professor Ivan Roitt (immunology), St George's Hospital Medical School, Graham Robert Vivian Hughes (rheumatology), Royal Postgraduate Medical School, John Lesley Miller (history), Queen Mary College, John David Parkes (neurology), Charing Cross Hospital Medical School and the Maudsley Hospital, Julia Margaret Polak (histochemistry), Royal Postgraduate Medical School, Janetta Annetta Reynolds (English), King's College, London, David Gordon Campbell Phillips (geodynamics, metallurgy), Imperial College, Professor Timothy Saunders (applied mathematics), Queen Elizabeth College, John Anthony Stone (biophysics), Imperial College, Professor Lesley Stone (neurosciences), St Thomas's Hospital Medical School, Geoffrey Stephen Maxwell (classics), King's College.

Manchester

Professor Mr John Maclure (histopathology), Christie Hospital and Holt Radium Institute.

Professor Lawrence Read (orthopaedic surgery), Dr Margaret Kellett (oral medicine and oral surgery); Mr J. P. J. Oliver (clinical work in the department of surgery), Mr F. E. Randall (surgery).

Newcastle

Professor of engineering: Professor Gordon Hunter.

Medical Research – Miss Patricia M. Ashworth – £63,027 from the Department of Health and Social Security for participation in the WHO *medium-term programme* in nursing and midwifery in Europe; Dr D. B. Drucker and Dr A. E. Jacob – £65,393 from the Medical Research Council for research into carcinogenic determinants of oral streptococci. Professor John Dubbing – £53,000 from the Medical Research Council for research into vulnerable periods in the developing brain. Dr A. R. Grossman and Dr M. A. Sambrook – from the MRC for research into involuntary movement disorders; Professor W. L. Ford – £33,012 for an MRC training fellowship; Dr Brian Robinson – £28,644 for research into homologues and analogues of caeruline. Professor D. B. Goldberg – £74,447 from the Jules Thorn Charitable Trust for research into factors which determine somatic presentations of distress. Dr Conrad Russell – £26,025 from Vick International for research into the formation of microbial plaque on denture surfaces and possible measures for prevention or removal.

Astronomy – Professor F. G. Smith – £506,900 from the Science and Engineering Research Council for research in radioastronomy. Professor F. D. Khan and Dr J. E. Dyson – £27,817 from the Science and Engineering Research Council for research into the dynamics of an inhomogeneous and magnetic interstellar medium.

Physics – £456,890 from the SERC for research into particle physics under the direction of Dr J. Ellis, Dr Michael Ibbotson and Professor P. G. Murphy. £139,546 from SERC for medium field NMR spectroscopy under the direction of Dr G. A. Morris. Professor J. K. Sutherland and Professor R. Ramage. £43,135 from SERC for research in *stress analysis under* Professor Peter Stanley. £40,087 from SERC for research into resonance enhanced electron energy loss spectroscopy under Dr John Comer. £34,134 from SERC for research into atom and five radical beams under Professor Roger Grice. £33,330 from the SERC for research into surface EXAFS *and* XANES under the direction of Dr Geoffrey Thornton.

Industrial Research – £60,750 from SERC for research into post-innovation performance of UK firms under the direction of Professors Michael Gibbons and Metcalfe and Dr P. P. Saviotti. £44,928 from the Technical Change Centre for research into the *interaction of tech*nical change and market structure in the development of industrial infrastructure under Professor Michael Gibbons, J. S. Metcalfe and Roger Williams. £28,968 from the Technical Change Centre for a study of public purchasing by Professor Roger Williams.

Computing – £56,700 from SERC for research into rigorous software development under Mr I. D. Cottam and Professor C. B. Jones. £42,200 from the SERC for research into parallel programmes under Dr Harold Bartlinger and Professor C. B. Jones.

Newcastle upon Tyne

Radiotherapy and clinical oncology: Professor Adrian Llewellyn Harris – £52,890 from the North of England Cancer Research Campaign for the measurement of mammalian enzymes involved in the repair of alkylated DNA, their inducibility and role in cytotoxic drug resistance.

Geography: Dr Ross L. Davies – £26,535 from Teco Stores Holdings Ltd to investigate future potential for teleshopping or armchair shopping.

Oxford

Clarendon Laboratory Gas Laser Development Group: £180,000 from the Wolfson Foundation *for further development of a practical laser* system using an electrical discharge in vapourised copper to generate intense pulses of green and yellow light, under direction of Dr C. E. Webb.

Metallurgy and materials science: Dr D. D. Double – £75,000 from the Wolfson Foundation for further work on cement of plastic consistency, suitable for sheet rolling, extrusion and injection moulding.

Salford

Aeronautical and Mechanical Engineering – Professor J. L. Livesey – £10,378 from the Procurement Executive, Ministry of Defence for a project on the calculation of axisymmetric flow over bodies at high speeds; £13,693 from the Procurement Executive, Ministry of Defence for a study of calculation methods for three dimensional air intake flows.

Electronic and Electrical Engineering – Professor G. Carter, Dr R. D. Tomlinson and Dr A. E. Hill – £139,789 from the SERC for a project entitled Teaching Company Programme between the University of Salford and Ferranti Electronics Limited. There is an industrial contribution of £45,000 towards the salaries of six Teaching Company Associates from Ferranti Electronics Limited.

Electronic and Electrical Engineering in conjunction with Salford University Industrial Centre Limited – £140,000 from the Wolfson Foundation for a project on a Dynamic Recoil Mixing Unit.

UMIST

Biochemistry – Professor P. M. A. Broda – £22,864 from the ARC for molecular biology of lignin degradation. Dr R. W. Davies and Dr C. Scazzocchio – £120,190 from the MRC for further studies of the mitochondrial genome of Aspergillus nidulans.

Chemical Engineering – Professor J. Garside – £35,603 from the SERC for metastable phase formation in crystallization processes.

Civil and Structural Engineering – Dr I. C. Hilton – £45,638 from Rees Jeffreys Road Fund for traffic engineering and control.

Computation – Mr J. M. Trianc – £64,950 from SERC for Cobol language enhancement facility. Professor D. Aspinall – £52,158 from United States Air Force for study to develop design guides for the implementation of multiprocessing element systems.

Control Systems Centre – Professor M G. Singh – £72,000 from Unilever Ltd for exploration of novel approaches to operations and design.

Electrical Engineering – Dr A. Bramoller – £29,662 from Water Research Centre for Detection of anomalies in distribution systems meter readings.

Management Sciences – Professor J. F. B. Goodman – £40,000 from Department of Employment for attitudes to legislation and the effects of recent changes in legislation on retrial, discipline, dismissal and redundancy, employment practices in firms of different sizes. Mr M. T. Cunningham – £73,340 from SSRC for high technology export marketing and international purchasing.

Mechanical Engineering – Mr P. D. W. Soden and Dr R. Kitching – £54,890 from SERC for Reinforcement of spherical GRP pressure vessels at radial branch connections. Professors B. J. Davies and Dr R. O. Hannam – £53,495 from SERC for Teaching Company Scheme with Leyland Vehicles Limited. Dr A. J. Yule – £35,000 from A B Volvo for Diesel spray atomization and vaporization.

Metallurgy – Dr R. Taylor – £28,400 from Ministry of Defence for Modelling of thermal properties of fibre reinforced composites.

Physics – Dr M. Smith – £25,126 from Ministry *of Defence for Infra-red propagation within* clouds typical of the North Atlantic.

Instrumentation and Analytical Science – Dr J. F. Alder – £21,080 from Ministry of Defence for Gas detection and analysis using optical wave guides.

Grants

Universities

Bath

School of Humanities and Social Sciences – £12,670 from the Anglo-German Foundation for the Study of Industrial Society to Professor R. E. Klein for a Comparative Study of the Regulation of the Private Sector of Welfare.

School of Management – £161,789 from the SERC to Professor R. E. Thomas, Professor J. Black and Mr R. A. Billett for the establishment of a Teaching Company Programme with a Group of Companies.

School of Materials Science – Professor B. Harris – £49,800 from Elf Aquitaine UK Ltd for the development of Advanced Composite Materials.

School of Pharmacy and Pharmacology – Dr P. H. Rediearn – £24,793 from the Ministry of Defence for *research into "Daily Variations in* Response to Centrally Acting Drugs".

Chelsea College, London

Biophysics and Bioengineering – Dr R. Challis – £27,000 from SERC for development of a wide band width *acoustic absorption dispersion spec*trometer.

Human Biology – £7,418 from the Royal Society for the screening of new-borns for amino-acidopathies in Karnataka, South India.

Biological Sciences – Dr A. N. Bark – £2,398 from NERC for a study of the role of ciliates in energy flow. *Professor* Peterson – £18,921 from The Two Finance and Exploration Ltd as an extension of the biogeochemical exploration for the platinum group metals.

Electronic – Professor Aitchison – £34,143 from SERC for the development of a solid state wideband power amplifier for small earth terminal transmitters.

Pharmacy – Dr Garrod – £27,451 from the MRC for research into imine-amine tautomerism as a factor in the metabolism of amino heterocycles to carcinogenic N– Oxidation products.

Centre for Science and Mathematics Education – £773,250 from the DES as an extension of a project entitled "Assessment of performance in science".

Manchester

Cancer Research – Professor Derek Crowther – £145,523 for the support of the medical oncology unit.

Forthcoming Events

Quality in Education conference, organized by the Standing Conference on Studies in Education, is on December 17 at King's College, Strand, London at 10.30 a.m. Topics include "The scientific aspect" (Professor Paul Black) and "Quality and wholeness" (Professor Raymond Wilson). Fee £3. For further information contact the Hon Secretary, Mr James Scotland, principal, Aberdeen College of Education, Hilton Place, Aberdeen AB9 1FA.

* * *

Thirteenth annual conference on *The European Community and the Recession*, organized by the University Association for Contemporary European Studies, is on January 5–7, 1983 in University of York. Speakers include Professor S. B. Saul, and William Nicoll. Fee £32 for resident members, £15 for non-resident members. Further information from Eva Evans, UACES secretariat, King's College, Strand, London

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Social Crisis and the Roots of Change in Modern Europe, organized by the University Association for Contemporary European Studies, is on March 24 and 30, 1983 at Ellis College, University of Kent, Canterbury. Fee £16 for resident members, £9 for non-resident members. Further information Eva Evans, UACES secretariat, King's College, Strand, London.

* * *

Technology: Friend or Foe of Older People?, organized by Age Concern, is on January 31, 1983 at Caxton Hall, Caxton Street, London SW1, 11 a.m. to 5 p.m. Speakers include Helga Wolff from the Clinical Research Centre Fee £10. Further information administrative secretary, Age Concern England, 60 Pitcairn Road, Mitcham, Surrey.

* * *

The following ten short courses in humanities subjects are to be run at Middlesex Polytechnic, Ivy House, North End Road, London NW11, unless otherwise indicated, during the spring term 1983. No prior academic qualifications are needed for any of these courses. Fees are £8 for each short course. Philosophy and Contemporary Life, organized by Middlesex Polytechnic, starting January 20 from 1.30 to 3.30 pm. Children's Literature. Effective Speaking: Theory and Practice; Enjoying German Literature, organized by Middlesex Polytechnic, starting *January 17 from 11.30 am to 1.30 pm*; Images of Women in Drama, organized by Middlesex Polytechnic, starting January 17 from 2 to 4 pm; France Today, organized by Middlesex Polytechnic, starting January 18 from 6 to 8 pm, at Trent Park, Cockfosters Road, Barnet, Herts; Religion in Present Day Society, The Golden Age of German Literature: Goethe, Lessing, Schiller; War, Peace and International Justice; Group Dynamics.

Recent publications

Teachers in Partnership: Four Studies of In-Service Collaboration is a Schools Council report on the professional development of individual teachers, with emphasis on classroom practice. Initial teacher training does not always provide teachers with observation and analytical skills adequate for *in-service study. It* concludes. Edited by Dr Jean Ruddock, the report is available from the Longman Resources Unit, 33-35 Tanner Row, York YO1 1JP, price £1.95.

* * *

Information for youngsters visiting Britain is contained in the 1983 edition of *Young Visitors to Britain*, published jointly by the Central Bureau for Educational Visits and Exchanges and the British Tourist Authority. With editions in English, French, German, Italian and Spanish, it includes details of local authority, private and university English language courses, non-vocational courses, work opportunities, places of interest and outdoor activities. It is available free from overseas offices of the British Tourist Authority, or £1.50 from the Central Bureau, Seymour Mews House, Seymour Mews, London W1H 9PE.

* * *

Deliberations of the Association of Commonwealth Universities at their council meeting in April 1982 in the Caribbean are recorded in *Universities Facing the Challenge of the Eighties – Can they survive in their present form?*, published by the ACU. The 160-page report contains the eight seminar papers presented at the meeting, on the topics of contrasting universities in the developed and developing world, technical and technological education and training, global problems and conflicts between national aspirations and academic integrity. Price £2 (surface post free), £3.65 airmail. It is available from the ACU, John Foster House, 36 Gordon Square, London WC1H 0PF.

* * *

*Videotex in Education: a New Technology brief*ing is a descriptive guide to the use of video technology today and points to its development in the future. Edited by Kenneth Owen, former *technology correspondent of The Times*, it is available at £3 from the Council for Educational Technology, 3 Devonshire Street, London W1N 2BA.

News

The Royal Scottish Geographical Society has awarded its Livingston Gold Medal to Sir Ranulph Fiennes, in recognition of his achievements on the Transglobe Expedition 1979–1982.

* * *

Mr Edward Batley, head of the German department at Goldsmiths' College, London, has been awarded the Jakob-und Wilhelm-Grimm-Preis of the German Democratic Republic for his services to German language and literature.

* * *

Mr Gwyn Thomas has been appointed deputy registrar and acting registrar and secretary of University College of North Wales, Bangor.

A student of Welsh history, Mr Thomas was former researcher in Welsh history for the Board of Celtic Studies at the University of Wales.

In 1969, after a period in London attached to the Institute of Historical Research, Mr Thomas returned to Bangor to become a member of the administrative staff. Initially he was an administrative assistant in the academic office but in 1971 he became senior administrative assistant in the registrar's personal office. In 1975 he was appointed assistant registrar and in the following year was seconded for a period of three *months to the secretariat of the Committee of* Vice Chancellors and Principals in London.

CLASSIFIED ADVERTISEMENTS

The Times Higher Education Supplement

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Appointments

Universities
Fellowships
Research and Studentships
Polytechnics
Colleges of Higher Education
Colleges with Teacher Education
Colleges and Institutes of Technology
Technical Colleges
Colleges of Further Education
Colleges and Departments of Art
Administration
Overseas
Adult Education
Librarians
General Vacancies
Industry and Commerce

Other classifications

Exhibitions
Awards
Conferences and Seminars
Courses
Personal
For Sale and Wanted
Holidays and Accommodation

Universities

AUSTRALIA

Applications are invited for the following posts for which applications close on the dates shown. SALARIES (unless otherwise stated) are as follows: Reader $A30,858; Senior Lecturer $A30,094–$A36,077; Lecturer $A22,450–$A29,467. Further details and application procedure may be obtained from The Association of Commonwealth Universities (Appts.), 36 Gordon Square, London WC1H 0PF unless otherwise stated.

The University of New South Wales, Sydney

LECTURER
School of Electrical Engineering and Computer Science

Applicants should have suitable higher degree or equivalent and provide evidence of teaching and research experience. Applicants with experience in any area of Electrical Engineering and Computer Science will be considered but that is greatest need for staff in some areas, particularly power, electronics, computer science and electronics.

At present staff is grouped in five departments (Electric Power, Electronics, Computer, Systems and Control, Computer Science) with a number of interdisciplinary activities in microelectronics, microprocessors) and some specialised areas (measurements, software, optical fibres, etc.).

The School has an active teaching programme with the Government backed specialised Postgraduate Course and undertakes strong laboratory and computer facilities are excellent.

Research is carried out mainly at the fundamental level although there are some interdisciplinary programs: research is well supported by internal and external grants.

Appointment will be on the basis of a contract and a link provision for conversion to tenure.

Commencing salary according to qualifications and experience.

28 January, 1983.

University of Queensland

READER/SENIOR LECTURER IN DEPARTMENT OF COMPUTER SCIENCE

Higher degree in Computer Science or equivalent research experience.

Relevant skills implies demonstrated ability in research leadership. Research interests in computer architecture, distributed systems, theoretical computer science, software engineering, artificial intelligence, computer communications, graphics and simulation, but applicants with other interests will be considered.

Facilities include Perkin-Elmer 3220 and PDP-11 computers and access to CYBER 76 at nearby CSIRO FAX facility.

28 January, 1983.

LECTURER IN CHEMISTRY
–3 year appointment

Applicants should have Ph.D. with research achievement in some aspect of inorganic chemistry. Preference may be given to a person whose interest lies in synthetic coordination chemistry and with the application of electrochemical or resonance spectroscopic techniques. In addition to undergraduate teaching, the appointee will be expected to carry out independent research and to contribute to departmental research activities.
14 January, 1983.

The University of Adelaide
Waite Agricultural Research Institute

LECTURER IN AGRICULTURAL BIOCHEMISTRY (E1065) (Tenurable)

in the area of Molecular Biology. Applicants should currently be actively engaged in the field of recombinant DNA and gene cloning in prokaryotic systems. The appointee will be required to set up a research laboratory in this area, to initiate research programmes involving microorganisms, especially those of agricultural interest, and to interact with other staff engaged in this field at the Waite Institute and in the Centre for Gene Technology on the North Terrace campus. The appointee will also participate in the teaching of Biochemistry at undergraduate level to agricultural science students and will supervise graduate students.
The position is available from 1 March, 1983.
Further information on research and teaching facilities in the Department of Agricultural Biochemistry may be obtained from the Chairman, Professor D.D. Nicholas ((08) 79 7901).

LECTURER IN ANIMAL SCIENCES (E1078) (Tenurable)

in the area of Cell Biology. Applicants should currently be actively engaged in the culture and manipulation of animal cells and should preferably have experience in the production of monoclonal antibodies. The appointee will be required to set up a research laboratory, initiate research programmes involving cells from farm animals and develop work on micro-injection of genetic material in conjunction with other staff at the Waite Institute and at the Centre for Gene Technology on the North Terrace campus. The appointee will also participate in the teaching of Animal Science at undergraduate level to agricultural science students and will supervise graduate students.
The position is available from 1 March, 1983.
Further information on research and teaching facilities in the Department of Animal Science may be obtained from the Chairman, Professor A.P. Schinckel ((08) 79 7901).
For full information about the general conditions of appointment may be obtained from the Personnel Manager of the University.
Holders of full-time tenured or tenurable academic appointments will be given the opportunity to convert their full-time appointments to part-time and those appointments for a specified period of up to ten years where this is necessary for the care of children.
Travel provision is available.
Applications, in duplicate, giving full personal particulars (including date of birth, nationality), details of academic qualifications and dates and addresses of three referees, should reach the Personnel Manager of the University of Adelaide, GPO Box 498, Adelaide, South Australia 5001 (telex: UNIVAD AA39141) no later than 28 February, 1983.

UNIVERSITY OF ZIMBABWE

Applications are invited for the following posts:

LECTURESHIP/SENIOR LECTURESHIP
DEPARTMENT OF BUSINESS STUDIES (3 posts)

The successful candidate should have a good first degree in an appropriate discipline and subsequent qualifications and/or experience in the business field. The department needs lecturers to fill vacancies in the field of general management, personnel management and industrial relations, finance and marketing.

LECTURESHIP/SENIOR LECTURESHIP
DEPARTMENT OF EDUCATIONAL ADMINISTRATION

Preference will be given to candidates with a master's or doctorate in educational administration. Candidates must be qualified in two or more of the following areas: educational organizational behaviour; administrative theory; philosophy of educational administration; the organization and administration of the educational planning and research methodology and statistics.

Candidates must also be able to design and teach courses in the above areas and supervise research at the diploma, master's and doctoral levels. Knowledge of the system of education in Zimbabwe will be an advantage.

LECTURESHIP/SENIOR LECTURESHIP
DEPARTMENT OF ANATOMY

The successful applicant must hold an MB ChB or equivalent medical qualification from a recognised university and a PhD or professional qualification.

ASSISTANT LECTURESHIP
DEPARTMENT OF ANATOMY

Applicants must hold an MB ChB or equivalent medical qualification from a recognised university.

SALARY SCALES:

(Non-Medical)	
Lecturer Grade II:	Z$8,016×516–9,564×552–13,428
Lecturer Grade I:	Z$3,980×396–15,564
Senior Lecturer:	Z$16,000×480–18,840
(Medical)	
Assistant Lecturer:	Z$11,664×432–18,392
Lecturer Grade II:	Z$14,688 x 432–15,120 x 468–15,588 x 480–17,508
Lecturer Grade I:	Z$17,988×480–19,908
Senior Lecturer:	Z$20,100 x 600–22,600 x 504–23,004

Appointments on above scales according to qualifications and experience.

CONDITIONS OF SERVICE: Both permanent and short-term contracts are offered. Persons who are not Zimbabwean citizens may be appointed only on a short-term contract basis with an initial contract period of two years. Short-term contracts may, in exceptional cases, be extended.

Six copies of Applications giving full personal particulars (including full name, place and date of birth etc.) qualifications, employment and experience, present salary, date of availability, telephone number and names and addresses of three referees should be addressed to the Director, Appointments & Personnel, University of Zimbabwe, PO Box MP 167, Mount Pleasant, HARARE, Zimbabwe (Telex: 4-152 ZW), from whom further particulars are available.

Overseas applicants should send an additional copy of their application to the Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF, from whom further particulars also available.

Closing date for receipt of applications is 10 January 1983.

University of Cambridge
ASSISTANT LECTURER IN THE FACULTY OF LAW

Applications are invited for the above post, tenable from 1 October 1983 or such other date as may be agreed. The appointment is for three years in the first instance, but it is possible that in the future this may be extended. Salary will be within the following scale: Assistant Lecturer £4,680 – £7,425 (£7,425 – £8,055 with effect from 1 October 1983). Further particulars may be obtained from the Secretary of the Faculty of Law, Studies Building, Cambridge CB2 1RX to whom candidates should send their applications (12 copies, including a curriculum vitae and the names of two referees, as soon as possible and not later than 31 January 1983).

University of Cambridge
Girton College, Cambridge
LECTURESHIP IN HISTORY AND OFFICIAL FELLOWSHIP

The college proposes to appoint a lecturer in History from 1 October 1983. In the field of either Modern British History or Modern European History (1789–). The person appointed will be an Official Fellowship.

Applications (12 copies) should be submitted to the Master's Council, from whom further particulars may be obtained, by 31 January, 1983. Candidates should send a curriculum vitae and the names of two referees, and may include a statement of current research work.

UNIVERSITY OF NIGERIA, NSUKKA, NIGERIA

Applications are invited from suitably qualified candidates for appointment to the vacant post of REGISTRAR of the University of Nigeria.

Qualifications and Experience
Candidates for this post must possess a good honours degree from a recognised University, and must have had extensive and varied post-qualification administrative experience at top management level, preferably in higher educational institutions. A higher degree or a postgraduate Diploma in public administration or related fields, will be an advantage.

Duties
The Registrar is the chief administrative officer of the University and is responsible to the Vice-Chancellor for the day to day general administration of the University. Specific duties include the conduct of the various University examinations, the admission of students, and the management of various Senate and Council affairs. The Office of the Registrar carries also the Secretaryship of Senate, Council, Congregation and Convocation of the University.

Terms and Conditions of Service
The selected candidate is to be appointed for three years in the first instance, subject thereafter to a review or re-appointment for such further periods and on such terms as Council may determine on the recommendation of the Vice-Chancellor.
Other conditions of service are as stated in the University booklet on Senior Staff Conditions of Service, copies of which are available on request from the University's Acting Personnel Officer.

Salary
US$ 15: N14,280 x 720 – N15,720.
Please note: N1 = .8594p approximately.

Method of Application
Interested candidates should forward 12 typewritten copies of their applications and detailed curriculum vitae to:
The Vice-Chancellor, University of Nigeria
Nsukka, Nigeria
to reach him not later than 31 January, 1983.
Candidates should also ask three named referees to forward references on their behalf to the Vice-Chancellor.
Candidates resident in the UK or Europe may send their applications to:
The Director, Nigerian Universities Office
160 Tottenham Court Road, London W1P 9LE
to whom references should also be sent.

DIOCESE OF BLACKBURN

There will be a vacancy at Easter 1983 for a

CHAPLAIN TO THE UNIVERSITY OF LANCASTER

An Anglican priest will be appointed to work with ecumenical colleagues in an Inter-Faith Chaplaincy Centre on the University Campus.
A job description and application forms may be obtained from the Bishop of Blackburn, Bishop's House, Ribchester Road, Blackburn BB1 9EF.
Closing date for applications: 31 December, 1982.

University of the West Indies Trinidad
LECTURER/ASSISTANT LECTURER IN STATISTICS

Applications are invited for suitably qualified candidates for the post of Lecturer/Assistant Lecturer in Statistics (or in a closely related area) in the Department of Mathematics. The appointee will be required to teach at undergraduate and Postgraduate levels in the Faculty of Natural Sciences and to carry out research studies and to teach at the undergraduate level in the Faculty of Engineering.

Salary Scales (to be revised):
Lecturer: TT$29,784 – 37,752;
Assistant Lecturer: TT$24,156 – 29,484 (£1 sterling = TT$5.8568).

F&SU. Unfurnished accommodation or housing allowance. Family passage. Study and Travel Grant. Application forms and details should be sent as soon as possible to the Secretary, Association of the West Indies, St Augustine, Trinidad. Applicants resident in the UK should also send a copy to the Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London W1P 0BT quoting reference 2698/83. Further details and application forms are available from either address.

University of the West Indies Trinidad
LECTURER/SENIOR LECTURER IN ECONOMICS

Applications are invited from suitably qualified candidates for the post of Lecturer/Senior Lecturer in Economics. Faculty of Social Sciences. Preferred applicant will be expected to teach and have a research interest in one or more of the following: Economic Theory, Quantitative Economics, History of Economic Analysis, Transport Economics, Public Finance/Public Policy/Public Sector Economics.
Appointment from October 1, 1983.

Salary Scales (to be revised):
Lecturer: TT$29,784 – 37,752;
Assistant Lecturer: TT$24,156 – 29,484 (£1 sterling = TT$5.8568).

F&SU. Unfurnished accommodation or housing allowance. Family passage. Travel Grant. Application forms and details should be sent as soon as possible to the Secretary, Association of the West Indies, St Augustine, Trinidad. Applicants resident in the UK should also send a copy to the Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London W1P 0BT quoting reference 2699/83. Further details and application forms are available from either address.

University of Hong Kong

Applications are invited for the following posts:

SENIOR LECTURESHIP/ LECTURESHIP IN ARCHITECTURE OR IN BUILDING

Applicants need not be architects but must be professionally qualified in architecture or building. Preference would be given to candidates who would be willing to undertake teaching and research in any one of the following subjects: structural design, building structures, surveying construction, environmental science, planning and administration. Salaries will vary according to the level of appointment.

LECTURESHIP IN ARCHITECTURE

Applicants should possess qualification from the University of Hong Kong, Architectural Association (Dipl.), Royal College of Art (Dipl.) or equivalents in their respective fields. Candidates should possess high standard of professional competence and experience would be desirable. Preference will be given to candidates who have a commitment to teaching and knowledge in computer studies or practice. Candidates should be willing to undertake studio instruction and other duties as may be assigned by the Head of Department.

Salaries (superior to Senior Lecturer): £21,960 – £25,920 per annum (under review).
Lecturer: £16,440 – £21,960 per annum.
Assistant Lecturer: £12,180 – £16,440 per annum.
Salaries rather than salary scales are quoted as the University does not expect to appoint at a point higher than the bottom point of the salary scale for the relevant post. Salaries will be reviewed annually.
Gratuity payable on satisfactory completion of agreement at the rate of 15% of total salary earned.
Leave: 42 working days per annum.
Medical benefits provided.
Housing: Subsidised housing may be available for appointees not in receipt of a housing allowance.
Passages: Return passages to the Commonwealth will be provided for appointees and their families. Assistance towards passages to Hong Kong may be given to appointees from other countries.
Children's Allowances: Allowances are payable in respect of children under the age of 18 who are dependent on the appointee.
Education: Assistance may be given towards the cost of approved courses of education for children of appointees.
Application forms may be obtained from the Association of Commonwealth Universities (Appts.), 36 Gordon Square, London WC1H 0PF, or from the Appointments Secretary, University of Hong Kong, Hong Kong. The closing date for applications is 31 January, 1983.

University of Lancaster
THE SIR JOHN FISHER CHAIR OF ELECTRONIC ENGINEERING

The Sir John Fisher Foundation has created a new Chair of Electronic Engineering within the Department of Engineering.
Applications are invited from persons experienced in the applications of electronics, having strong interests in research, and possessing the ability to lead a sizeable team.
The person appointed will be expected to undertake existing activities in the testing of electronics and to liaise with the Department's consulting company. The development of research programmes in conjunction with both SERC and industry will be a major priority.
Needs in instrumentation, robotics and digital control would be advantageous, but the exact field is of less importance than the quality of the candidate.
Six copies of applications, quoting reference L051, together with the names of three persons to whom reference may be made, should be sent by January 1983, to the Establishment Officer, The University, Lancaster LA1 4YW, from whom further particulars may be obtained.

University of Hong Kong

Applications are invited for the following posts:

SENIOR LECTURESHIP/ LECTURESHIP IN ARCHITECTURE OR IN BUILDING

Applicants need not be architects but must be professionally qualified in architecture or building. Preference would be given to candidates who would be willing to undertake teaching and research in any one of the following subjects: structural design, building structures, surveying construction, environmental science, planning and administration. Salaries will vary according to the level of appointment.

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Leave: 42 working days per annum.
Medical benefits provided.
Housing: Subsidised housing may be available for appointees not in receipt of a housing allowance.
Passages: Return passages to the Commonwealth will be provided for appointees and their families. Assistance towards passages to Hong Kong may be given to appointees from other countries.
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Universities continued

BELFAST
The Queen's University
INSTITUTE OF IRISH STUDIES

Research Appointments and Grants

Applications are invited for two senior and at least three junior fellowships tenable in the Institute of Irish Studies from 1 October, 1983 for research in any field of study relevant to Ireland.
Candidates for the senior fellowship which is in the salary range £9,315–£9,511 with USS if appropriate and tenable for one year only should be established scholars of several years standing. Candidates for the junior fellowships which are worth £9,241 per annum plus fees and tenable for one year with possible renewal for a second should normally have good honours degree and must have research experience.
In addition up to £300 is available for expenses for visiting scholars.
Application forms are available from the Secretary in Academic Council, The Queen's University of Belfast, Belfast BT7 1NN, and should be lodged with him by 31 January, 1983.

THE UNIVERSITY OF LANCASTER

THE SIR JOHN FISHER CHAIR OF ELECTRONIC ENGINEERING

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Needs in instrumentation, robotics and digital control would be advantageous, but the exact field is of less importance than the quality of the candidate.
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University of Hong Kong

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Application forms may be obtained from the Association of Commonwealth Universities (Appts.), 36 Gordon Square, London WC1H 0PF, or from the Appointments Secretary, University of Hong Kong, Hong Kong. The closing date for applications is 31 January, 1983. H1

University of Cambridge
ASSISTANT LECTURER IN THE FACULTY OF LAW

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Girton College, Cambridge
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Applications (12 copies) should be submitted to the Master's Council, from whom further particulars may be obtained, by 31 January, 1983. Candidates should send a curriculum vitae and the names of two referees, and may include a statement of current research work. H3

University of the West Indies Trinidad
LECTURER/ASSISTANT LECTURER IN STATISTICS

Applications are invited for suitably qualified candidates for the post of Lecturer/Assistant Lecturer in Statistics (or in a closely related area) in the Department of Mathematics. The appointee will be required to teach at undergraduate and Postgraduate levels in the Faculty of Natural Sciences and to carry out research studies and to teach at the undergraduate level in the Faculty of Engineering.

Salary Scales (to be revised):
Lecturer: TT$29,784 – 37,752;
Assistant Lecturer: TT$24,156 – 29,484 (£1 sterling = TT$5.8568).

F&SU. Unfurnished accommodation or housing allowance. Family passage. Study and Travel Grant. Application forms and details should be sent as soon as possible to the Secretary, Association of the West Indies, St Augustine, Trinidad. Applicants resident in the UK should also send a copy to the Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London W1P 0BT quoting reference 2698/83. Further details and application forms are available from either address.

University of the West Indies Trinidad
LECTURER/SENIOR LECTURER IN ECONOMICS

Applications are invited from suitably qualified candidates for the post of Lecturer/Senior Lecturer in Economics. Faculty of Social Sciences. Preferred applicant will be expected to teach and have a research interest in one or more of the following: Economic Theory, Quantitative Economics, History of Economic Analysis, Transport Economics, Public Finance/Public Policy/Public Sector Economics.
Appointment from October 1, 1983.

Salary Scales (to be revised):
Lecturer: TT$29,784 – 37,752;
Assistant Lecturer: TT$24,156 – 29,484 (£1 sterling = TT$5.8568).

F&SU. Unfurnished accommodation or housing allowance. Family passage. Travel Grant. Application forms and details should be sent as soon as possible to the Secretary, Association of the West Indies, St Augustine, Trinidad. Applicants resident in the UK should also send a copy to the Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London W1P 0BT quoting reference 2699/83. Further details and application forms are available from either address. H1

University of Hong Kong

ASSISTANT ESTATES OFFICER

Applications are invited for the post of Assistant Estates Officer.

Applicants should be associates of either of the Royal Institution of Chartered Surveyors (Building Sub-division) or the Royal Institute of British Architects or hold an equivalent professional qualification, with at least five years' post-qualification experience.

The appointee will be responsible to the Estates Officer through a Senior Assistant Estates Officer for the management of one or more new capital building projects of a varied nature being carried out under the supervision of outside consultants, and for maintenance, alteration and other estates works.

Appointment will be made on a 3½ year fixed term contract basis to start as soon as possible.

The annual salary is on an 8 point scale: HK$16,590 – $17,380 (£1 = HK$10.70 approx.). Starting salary will depend on qualifications and experience.

At current rates, salaries tax will not exceed 15% of gross income. Housing benefits at a rental of 7½% of salary, 5% gratuity (taxable), children's cost of living allowances, leave and medical benefits are provided.

Further particulars and application forms may be obtained from the Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF or from the Appointments Unit, Secretary's Office, University of Hong Kong, Hong Kong. The closing date for applications is 31 January, 1983. H1

The Papua New Guinea University of Technology
Department of Language and Social Science

LECTURER/SENIOR LECTURER ENGLISH FOR SPECIFIC PURPOSES

Applications are invited for the above post, which involves teaching the language skills needed by students in the University's professional courses. Applicants should possess a relevant first degree and postgraduate qualifications. Experience in teaching English for Science and Technology (E.S.T.) and/or Business Communications at the tertiary level is highly desirable. Experience of materials development would be an advantage.

Salary: – Lecturer K15,161 – K17,161
Senior Lecturer K18,860 – K21,860
(K1 = £0.7082).

Initial contract period is for 3 years. Other benefits include a gratuity of 24% taxed at 9%, superannuation and repatriation fares, leave fares for the staff member and family after 18 months of service, settling-in and settling-out allowances, six weeks paid leave per year, education fares and assistance towards school fees, free housing, subsidised mess, insurance and medical benefit schemes are available.

Detailed applications (two copies) with curriculum vitae together with names and addresses of three referees should be received by: The Registrar, The Papua New Guinea University of Technology, Lae, Morobe Province, Papua New Guinea, by 31 January 1983.

Applicants resident in the United Kingdom should send one copy of their application to the Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF from whom further information may be obtained. H1

The City University
Centre for Studies in Property Valuation and Management

LECTURER

Applications are invited for the above post. Ideally candidates should possess a basic qualification in land economics and practical experience in the valuation of property development and investment, and a knowledge of and continuing interest in advanced valuation techniques. They must be Corporate Members of the Royal Institute of Chartered Surveyors or have an appropriate academic qualification.

The successful candidate will be required to teach valuation in the second and third years of the undergraduate B.Sc. Degree Course in Property Valuation and Management, to take an active part in the development of the course, and to assist in fostering the relationship between the Centre and professional practitioners in the property world.

Salary will be on the scale £6,345 – £13,605 per annum plus £1,095 per annum London Allowance.

The appointment will be initially for three years.

Further particulars and application forms may be obtained from the Academic Registrar's Office, The City University, Northampton Square, London EC1V 0HB. Telephone: 01-253 4399, Extension 3033. Informal enquiries may be made to Professor R.J. Bowcock. Applications should be received by 14th January 1983, quoting reference number A/2/3. Please quote Reference No. T/2/83 in all correspondence. Closing date 7th January 1983. H1

University of Oxford
Institute of Agricultural Economics

COMPUTER OFFICER

A Computer Officer is required to contribute to ongoing work at the Institute. Duties involve participation in econometric research including processing of data, advising and assisting staff and research students in the use of library programmes, writing and amending other programmes and introducing students to computing facilities. Contribution to research expected to be supported by ICL 2980 and DECVAX computers with interactive facilities in user's own room and terminal facilities are available at the Institute. The post is on a Grade 1B scale (£5,370 – £6,375). A part-time or short-term appointment would also be considered.

Applications with the names of two referees should be sent to the Administrator, Institute of Agricultural Economics, Parks Road, Oxford OX1 3PF. H1

University of Birmingham

RESEARCH ASSOCIATESHIPS IN LINGUISTICS

Applications are invited for two full-time Research Associateships for one year to sponsored research project in linguistics. The project sponsors some of the vestigial features in the sociolinguistic patterns of an urban dialect loss and maintenance among speakers of Panjabi and Urdu in the Punjabi community in the West Midlands area. Applicants must have good knowledge of either Panjabi or Urdu. Additional training in linguistics, in ethnography, education and/or sociology desirable.

Salary on scale £6,556–£8,085, plus superannuation.

Applications (six copies) naming three referees, by 14 January, 1983, to Registrar (Arts), University of Birmingham, PO Box 363, Birmingham B15 2TT. H1

University of Oxford
Institute of Agricultural Economics

COMPUTER OFFICER

A Computer Officer is required to contribute to ongoing work at the Institute. Duties involve participation in econometric research including processing of data, advising and assisting staff and research students in the use of library programmes, writing and amending other programmes and introducing students to computing facilities. Contribution to research expected to be supported by ICL 2980 and DECVAX computers with interactive facilities in user's own room and terminal facilities are available at the Institute. The post is on a Grade 1B scale (£5,370 – £6,375). A part-time or short-term appointment would also be considered.

Applications with the names of two referees should be sent to the Administrator, Institute of Agricultural Economics, Parks Road, Oxford OX1 3PF. H1

University of Newcastle upon Tyne
University Library

SENIOR LIBRARY ASSISTANTS

Applications are invited for two posts of Senior Library Assistant in the University Library, one post to have particular responsibility for Periodicals and the other for the control of the Divisional Libraries of Science and Agriculture. Applicants should be graduates preferably with professional qualifications and experience.

Salary will be at an appropriate point on the grade 3 scale £6,375 – £8,370 (at present under review) according to age, qualifications and experience. Membership of the appropriate University superannuation scheme will be required.

Applications with the names and addresses of three referees must be sent to arrive not later than 31 January, 1983 to the Librarian, Newcastle upon Tyne NE1 7RU, from whom further particulars may be obtained. H1

University of Salford
Estates and Building Division

DEPUTY REGISTRAR

Applications are invited from appropriately qualified persons for the above post of deputy registrar (estates and buildings) in the Registrar's Department. Initially the successful applicant will be required to supervise work associated with the University's building programme, with particular responsibility for the control of expenditure and the preparation of final accounts.

Salary scales (to be revised): – Accountant TT$37,932 – 45,732
Assistant Accountant TT$24,156 – 29,484 (£1 sterling = TT$5.8568).

F&SU. Unfurnished accommodation or housing allowance. Study and Travel grant. Application forms and details should be sent as soon as possible to the Secretary, University of the West Indies, St Augustine, Trinidad. Applicants resident in the UK should also send a copy to the Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London W1P 0BT quoting reference L/2317/83. Further details and application forms are available from either address. H1

University of Stirling

SENIOR LECTURESHIP AND LECTURESHIP IN SMALL BUSINESS

Applications are invited for the above appointments of Senior Lecturer in Small Business and Lecturer in Small Business in the Scottish Enterprise Foundation to commence as soon as possible. These are new appointments for a period of 3 years in the Foundation. The Senior Lectureship appointment will also involve the post of Deputy Director of the Scottish Enterprise Foundation. The bulk of activities will involve a range of initiatives in education, training and development with small business with a significant research role. Knowledge and experience in this field would be a major advantage for both appointments.

The appointments will be for 3 years in the first instance, but it is possible that in the future this may be extended. Salary will be within the following scale: Senior Lecturer and Deputy Director £18,585–£19,180 Lecturer: £7,935–£13,505.

A written curriculum vitae with the names of 3 referees should be sent no later than 5th January 1983 to the Deputy Secretary, University of Stirling, Stirling FK9 4LA. tel: 3171/2, 9314 from whom further details are available. H1

University of the West Indies Trinidad
ACCOUNTANT/ASSISTANT ACCOUNTANT

Applications are invited from suitably qualified candidates for the post of Accountant/Assistant Accountant in the Bursary, St Augustine. Applicants should preferably be Certified, Chartered or Cost and Management Accountants and/or hold an appropriate University degree. In particular applicants should have experience in auditing, financial administration, budgeting, cost control, computerised accounting and preparation of final accounts.

Salary scales (to be revised): – Accountant TT$37,932 – 45,732
Assistant – Accountant TT$24,156 – 29,484 (£1 sterling = TT$5.8568).

F&SU. Unfurnished accommodation or housing allowance. Study and Travel grant. Application forms and details should be sent as soon as possible to the Secretary, University of the West Indies, St Augustine, Trinidad. Applicants resident in the UK should also send a copy to the Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London W1P 0BT quoting reference L/2317/83. Further details and application forms are available from either address. H1

The New University Ulster
School of Social Sciences

TEMPORARY LECTURESHIP IN HEALTH VISITING

Applications are invited for the above post which will commence from as early as possible and will end on 30th September, 1984.

Applicants for the post should be specialised as Health Visitor Tutors by the Council for the Education and Training of Health Visitors.

Salary scale: £6,375–£12,600 per annum (with DSS).

Further particulars may be obtained from the undersigned. The New University of Ulster, Coleraine, Northern Ireland BT52 1SA (quote Ref: 80/83) to whom applications including the names and addresses of three referees, should be received not later than 11th January, 1983. H1

University of Southampton

ASSISTANT CAREERS ADVISER

Applications are invited from graduates for the post of Assistant Careers Adviser. University Careers Advisory Service, to advise and give practical help to undergraduates in Mathematics, Science and Engineering.

Further particulars may be obtained from Mr A.J. Small, The University, Highfield, Southampton, Hampshire, SO9 5NH, to whom applications (6 copies) should be sent not later than 7 January, 1983. Please quote ref. THES. H1

Personal

IMMEDIATE ADVANCES £100 to £60,000. Private terms possible. Regional Trust Ltd., 77 Dean Street, London W1A 1PS. Phone 01-491 2834 or 439 3412. L406

Fellowships

RESEARCH FELLOWSHIP

The Tauber Institute invites applications for one year Post-Doctoral Research Fellowship beginning September 1983. Doctorate awarded within past 5 years prerequisite for application. The Institute sponsors research in aspects of Modern European History, including Nationalism and Racism, Modern Jewish History and Culture, Refugee Problems, Fascism and Anti-Semitism. Limited teaching duties. Submit 3 copies of cv, detailed research plan and names and addresses of 2 references to: The Institute Director, Lown Building by April 6, 1983. Appointment conditional on funding approval. Brandeis University, Waltham, Massachusetts, 02254. AA/EOE.

BRANDEIS UNIVERSITY

The London Hospital Medical College and the Centre for the Study of Primary Care

NON-MEDICAL SENIOR RESEARCH FELLOW (Senior Lecturer Scale) at the Centre for the Study of Primary Care

Applications are invited for a three year post in the Epidemiology of Clinical Medicine with responsibility for research in General Practice at the Centre for the Study of Primary Care. The candidate will have an academic research background in community or primary health care, social science or statistics. Duties will include organising the programme, undertaking research in population and community studies, the process and content of care, the dynamics of primary care networks, and the interfaces between primary care and other forms of health and social care.

The Centre for the Study of Primary Care has been established by the North East Thames Regional Health Authority, and is based in East London. Applications for a part-time post will be considered.

Applications should be made in writing to: Professor Eve Alperstein, Director of Clinical Epidemiology, The London Hospital Medical College, Turner Street, London E1 2AD.

Please enclose two copies of a curriculum vitae. Prospective applicants may contact Professor Alperstein on 247 5454 ext 408 or 790.

The closing date will be one month after the date of publication of this advertisement. H3

University of Liverpool
RESEARCH FELLOWSHIPS

The University is offering two Research Fellowships, to be held in the Department of the University, from 1 October or up to three years.

Salary will be on the range £6,375 – £8,370 per annum depending on age and experience.

Further particulars and application forms may be obtained from Dr. Peter Jarrar, The University, PO Box 147, Liverpool, L69 3BX, to whom completed application forms should be received not later than 28 January, 1983. Quote Ref: RV/844. H3

Scholarships

Royal College of Art

THE GOLDSMITHS' COMPANY RESEARCH SCHOLARSHIP IN THE HISTORY OF THE APPLIED ARTS

Applications are invited from suitably qualified candidates for the above research scholarship. It is tenable for a two-year period of research in the Department of Cultural History, Royal College of Art, leading to the Degree of M.A./R.C.A.I by thesis.

The Scholarship is intended to support post-graduate research into the history of silversmithing and jewellery, ceramics, furniture or textiles.

Further details and application forms are available from the Registrar, Royal College of Art, Kensington Gore, London SW7 2EU.

Closing date for applications: Monday 31 January 1983. H3

Durham University Research Foundation

ELF AQUITAINE RESEARCH FELLOWSHIP IN FOSSIL ENERGY EXPLOITATION

The Durham University Research Foundation invites applications for the ELF Aquitaine Research Fellowship in Fossil Energy Exploitation. The Fellow will be attached to Durham working in conjun

Fellowships continued

University College Cardiff
Department of Education
TEMPORARY RESEARCH FELLOW IN SCIENCE EDUCATION

Applications are invited for the above post. Appointee will carry out a research project concerned with Awareness of Biotechnology in Schools, and will be qualified in some or all of the following respects: familiarity with current practice in the teaching of biology in secondary schools; experience in biotechnology based industry; experience with appropriate research methodologies. Salary Range £6,375–£11,105 p.a. Duties to commence by April 1983.

Applications (3 copies) together with the names and addresses of two referees, should be forwarded to the Vice-Principal (Administration and Bursar), University College, PO Box 78, Cardiff CF1 1XL, from whom further particulars may be obtained. Closing date 31st January 1983. Ref 2508. H2

University of Edinburgh
Centre for Educational Technology
RESEARCH FELLOW
(Closing date 6 January 1983)

A three-year post exists for a Research Fellow to work on the SSRC-funded programme into the Effectiveness of Schooling, commencing early 1983.

The appointee will have experience in the multivariate analysis of survey data. A strong methodological background and/or knowledge of the literature on school effectiveness are relevant. Applications are also invited from applied statisticians and researchers in cognate fields.

Salary will be on the IA/II scale (at the rates £6,375–£11,105/£10,440–£11,105.

Applications by letter, giving details of qualifications and experience, plus the names and telephone numbers of two referees should be submitted to the Bursar, Centre for Educational Sociology, 7 Buccleuch Place, Edinburgh EH8 9LW. Further details are available; interviews Tuesday 11 January 1983. H2

Please quote reference No. 3060

University of Oxford
Lincoln College
DARBY TUTORIAL FELLOWSHIP IN POLITICAL THEORY

The College invites applications from graduates of either sex under 28 years of age on 1st October, 1983 for a Darby Tutorial Fellowship in Political Theory, tenable for seven years from October 1983; application from older candidates will be entertained in special circumstances only. The current starting salary is £6,640 rising to £9,305 in the seventh year, in making the appointment, regard will be had to research potential as much as to teaching experience or qualifications.

Further particulars and application forms may be obtained from the Rector, Lincoln College, Oxford, OX1 3DR, to whom applications should be submitted by 14th January 1983. H4

Courses

Royal College of Art
Department of Cultural History

The department is looking for students with the chief qualifications and experiences in research for MA degrees by thesis in the subject areas:

History and philosophy of art and design. Cultural studies.

Some postgraduate bursaries are available to eligible applicants. Mid-career candidates are also encouraged to apply.

Further details and application forms are available from the Registrar, Royal College of Art, Kensington Gore, London SW7 2EU.

Closing date: Monday 31 January 1983. H121

Polytechnics

PAISLEY COLLEGE
A Scottish Central Institution

PROFESSOR HEAD OF DEPARTMENT OF SOCIAL STUDIES

SALARY £18,117 p.a.

This post will become vacant in January following the retirement of Professor H. N. Sheldon. The Department of Social Studies offers courses in Social Work, Social Administration, Psychology, Health Visiting, Careers Guidance and Alcohol Studies at honours degree, postgraduate or post qualification levels.

Applicants should, therefore, be well qualified academically in an appropriate discipline and be able to guide and develop research and teaching within the Department. Professional or Research experience in a branch of applied Social Studies, eg *Social Work/Social Service, Health Service/Health Education*, Housing, Community Development etc, would be advantageous.

Application forms and further particulars are available from the Personnel Officer, Paisley College of Technology, High Street, Paisley PA1 2BE (tel: 041–887 1241, ext. 230).

Lecturer in Catering Systems

LII/SL: £7,404–£13,365 pa inc.
PL: £12,480–£15,567 pa inc.

To teach Catering Systems to hotel and catering students up to and including degree level, and to make a major contribution to degree level studies. The ability to promote research in this area and to maintain links with industry and professional and government bodies associated with the hotel and catering industry is expected
Candidates should have experience of working in industry and should possess an appropriate degree.
Demonstrated research ability, professional qualifications and degree teaching experience may be required for appointment at PL level.
Write quoting ref A326C for further information and an application form, posting first-class to: Personnel Office, Middlesex Polytechnic, 114 Chase Side, London N14 5PN. Closing date January 4.

Middlesex Polytechnic

PRINCIPAL LECTURER
in the Management and Organisation of Manufacturing Systems
(Computer Applications)
£11,931–£15,018

To undertake teaching and research in the above discipline and to contribute to various aspects of administration within the department. Specialism in the application of computers to production scheduling or facility design and layout, or production simulation and optimisation studies, or industrial engineering, would be a particular advantage.

Further details and form of application from the Staff Officer, Trent Polytechnic, Burton Street, Nottingham NG1 4BU.
Closing date 7th January, 1983.

TRENT POLYTECHNIC NOTTINGHAM

KINGSTON POLYTECHNIC
Master's course in INFORMATION SYSTEM DESIGN

PRINCIPAL & SENIOR LECTURERS

Applications are invited from well-qualified candidates for posts to support a very important academic/industrial collaborative course development. Applicants should have research and/or industrial experience in system analysis or some aspect of information system design. Expertise in office automation, public service systems or software engineering methodologies would be an advantage. The responsibilities of the principal lecturer will include co-ordination of the course activities. Those appointed will be expected to set up a programme of appropriate research.
Salary range: Principal Lecturer £12,480–£15,567 inclusive
Senior Lecturer £10,722–£13,365 inclusive

Full details and application forms (to be returned as soon as possible) from Academic Registry, Dept. AO, Kingston Polytechnic, Penrhyn Road, Kingston upon Thames KT1 2EE. Tel: 01-549 1366, Ext. 204.

Manchester Polytechnic
Institute of Advanced Studies
Management Education/ Industrial Design
RESEARCH ASSISTANT

The person appointed will work as part of a team preparing and testing case studies of the role of design in new product management. Some experience of the use of case studies in management education would be an advantage.

Salary scale: £5,808–£6,267.

Further details from Dr John Lowndes Davis, Institute of Advanced Studies, Manchester Polytechnic, All Saints, Manchester M15 6BH. Tel: 061-236 3300. H3

Bristol Polytechnic
TEMPORARY PART-TIME HISTORY LECTURER

Required from mid-February to June 1983 to teach on the B.Ed. (CNAA) course "Renaissance, Reconnaissance and Information" for 4½ hours per week.

Applicants, who should be good honours graduates in history, should write for details and application (including curriculum vitae) as soon as possible, to Dr S. Parkin, Department of Education, Bristol Polytechnic, Redland Hill, Bristol BS6 7EU. H3

City of London Polytechnic
TEMPORARY LECTURER II IN POLITICS

Lecturer required as soon as possible to specialise in two of the following:
Modern British Politics from 1918. International Politics in the 20th Century. The EEC.

Salary on a scale from £7,650 to £11,856 (including London Weighting).

For further details and an application form please do not telephone but write on a postcard to the Staff Records Officer, City of London Polytechnic, 117 Roundwood Avenue, London WC2 1BU and quote ref no 82/100. H3

Robert Gordon's Institute of Technology, Aberdeen
School of Pharmacy
LECTURER IN PHYSIOLOGY AND PHARMACOLOGY

with appropriate qualifications for teaching and to initiate project and research work. Teaching, industrial or research experience will be and advantage.

Salary range: £7,956–£13,365 per annum.

Assistance with removal expenses.

Further details from Secretary, Robert Gordon's Institute of Technology, Schoolhill, Aberdeen, AB9 1FR (0224 632371). Applications by 7th January, 1983. H3

Administration

SHP
South Hill Park Arts Centre
Bracknell, Berkshire. Tel: 0344 27272
This leading arts centre seeks to appoint by April 1983:

MUSIC OFFICER
Salary scale £6,144–£7,716
and
THEATRE OFFICER
Salary scale £6,144–£7,716

In both cases, an emphasis may be placed on participation work, but promotion of professional performances to all aspects of music/drama is important.
A new auditorium is under construction
Pension scheme and assisted housing available.
Further details and application form (closing date 31 December) available from the Director.

University of London
The London Hospital Medical College
ADMINISTRATIVE ASSISTANT,

As a result of the retirement of a long serving member of the administrative staff, it is proposed to establish a new post within the office of the College Secretary. Duties and responsibilities will include supervision of secretarial staff, personnel administration, servicing of appointments and other advisory committees, and such other tasks which contribute to the smooth day to day running of the administration of the College.

Those applying should have previous experience preferably either in personnel administration or of University administration, the ability to cope with a wide spectrum of problems and to communicate and liaise effectively with Heads of Departments.

Salary in Grade IA of academic related Universities scales £6,390 – £11,106 plus £1,035 London allowance) according to experience.

Applications to The Secretary, The London Hospital Medical College, Turner Street, London E1 2AD from whom further particulars may be obtained. H11

Miscellaneous

The Incorporated Association of Organists

Applications are invited for the post as Editor of the Incorporated Association of Organists Official magazine, THE ORGANISTS' REVIEW, at a modest salary. Published quarterly.

The readership of about 5,000 represents a cross-section of opinion on all church music and organ matters. Editorial policy reflects this.

Applications by 31st January, 1983 to Rower Harbour, A.I.O. Secretary, Harbor House, 33 Bradford Road, Lolefs, Bradford on Avon, Wiltshire BA15 2RW. H26

Imperial College
POSTGRADUATE RESEARCH IN NUMERICAL FLUID DYNAMICS

A bursary is available to support a research student for computations of compressible high speed flow past slender bodies. The successful candidate is expected to register for PhD in the University of London and may commence any time in the period up to October 1983. The bursary will be in accordance with current SERC rates, and all fees are paid by the Ministry of Defence who are the sponsors.

Applicants with a good degree in engineering, physics or mathematics should send a C.V. together with the names of two academic referees to the Head of the Department of Aeronautics, Imperial College, Prince Consort Road, London SW7 2BY, quoting the reference RH/JMRC. H11

Research & Studentships

University of Durham
Department of Archaeology (C.U. Laboratory)
RESEARCH ASSISTANT

Applications are invited for a Research Assistant in the thermoluminescence laboratory to assist with the establishment of a dating service.

Applicants should be graduates in either natural sciences or of archaeology with some training in archaeological science.

The post will be for a period of three years. The salary will be on S50 per annum, plus superannuation.

Applications (3 copies) together with the names of three referees, should be sent not later than 20th January 1983 to the Registrar and Secretary, 3 Old Shire Hall, Durham DH1 3HP, from whom further particulars may be obtained. H10

Colleges of Technology

STRATHCLYDE REGIONAL COUNCIL
Department of Education
GLASGOW COLLEGE OF TECHNOLOGY
Glasgow College of Technology, a Polytechnic institution of H.E., invites applications for the following posts:

RESEARCH ASSISTANTS (2 posts)

Candidates must normally be in possession of an honours degree or equivalent qualification. Research Assistants will normally be expected to register for a higher degree by research.
Applications are particularly invited for research in the following topics:
1. Dept. of Health and Nursing Studies.
Community Nursing: The relevance of theory to practice.
2. Dept. of Computer Studies.
Software for information systems design.
3. Dept. of Politics.
Policy co-ordination in housing and social work: A policy analysis.
4. Dept. of Biology.
A study of aquatic food chains in Possil Loch.
5. Dept. of Biology.
Biochemical mechanisms of chemical carcinogenesis.

Salary Scale: £5,967–£8,449.
Application forms from the Establishments Officer, Glasgow College of Technology, Cowcaddens Road, Glasgow G4 0BA (Tel: 041-332 7090) to whom applications should be returned within 14 days of the appearance of this advertisement.
E. Miller, Director of Education

Colleges of Higher Education

Athrofa Gogledd-dd Cymru
The North E Wales Institute
of higher education

THE NORTH EAST WALES INSTITUTE OF HIGHER EDUCATION
Deeside, Clwyd

LECTURER II
IN FOOD AND BEVERAGE SERVICE SUBJECTS
(£6,855–£11,822)

A knowledge of City and Guilds courses 705, 707/1, 707/2 and 709 is required. Relevant experience in the industry would be an advantage.

Further particulars and application form available from the Institute Registrar, The North East Wales Institute, Deeside, Clwyd. Tel: Deeside 817531, Ext. 271.
Closing date for receipt of applications 14th January, 1983.

Colleges of Higher Education continued

Tasmanian College of Advanced Education
SCHOOL OF NURSING

The Tasmanian College of Advanced Education is a multidisciplinary college situated in Launceston (pop. 84,000 in the Greater Launceston area) on the Tamar river. Degree or Diploma level studies are offered in Administration, Applied Science, Art, Education, Engineering, Environmental Design, General Studies, Music, Nursing and Social Work. Current enrolments are in excess of 2,100 and this is expected to rise to 2,500 by 1984.

HEAD OF SCHOOL
(Ref. No. 13882)

Applications are invited for the position of Head of the recently established School of Nursing to assume responsibility of the position upon the retirement of the current Head, Dr Bessie Deakin. The School currently offers a Degree programme for experienced registered nurses and a Diploma programme for Basic Nursing. Both of these programmes commenced in 1982.
The Head of School is responsible for the academic development and continual operations of these courses within the School.
The successful applicant will be a registered general nurse with appropriate professional experience at senior level and postgraduate academic qualifications. Experience in teaching and administration of a tertiary nursing programme is required.
Salary: Principal Lecturer 1 – $A39,666 per annum.

LECTURER/ SENIOR LECTURER
(Ref. No. 13982)

The successful applicant will be required to undertake appropriate teaching duties, assist the Head of School in the continuing development of the Degree programme for experienced nurses, and the Diploma programme for Basic Nursing, which commenced in 1982.
The appointee will be a registered general nurse, and desirably will also have appropriate postgraduate academic qualifications and teaching experience. Applicants should indicate the specialities in which they can teach, in addition to general nursing.
Salary: Lecturer II – $A22,430–$A25,648 per annum; Lecturer I – $A26,521–$A29,467 per annum; Senior Lecturer II – $A30,096–$A32,226 per annum.
Enquiries of an academic/professional nature should be directed to the Head of the Division of Community and Health Studies, Dr Ian Gelin (Tel: (003) 26 0254), in the College.
Further information is available from the Registrar. Applications, quoting the appropriate reference number, and including full personal and professional details and the names and addresses of three referees, should be forwarded to: The Registrar, Tasmanian College of Advanced Education, PO Box 1214, Launceston, Tas. 7250, Australia. A copy should also be sent to the Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF, from further home information is also available.
Closing date: 4 January, 1983.

Tasmanian College of Advanced Education
HEAD OF SCHOOL OF ART
(Ref. No. 13482)

The Tasmanian College of Advanced Education is a multidisciplinary college situated in Launceston (pop. 84,000 in the Greater Launceston area) on the Tamar river. Degree or Diploma level studies are offered in Administration, Applied Science, Art, Education, Engineering, Environmental Design, General Studies, Music, Nursing and Social Work. Current enrolments are in excess of 2,100 and this is expected to rise to 2,500 by 1984.
Applications are invited for the position of Head of the School of Art. The School currently offers teaching programmes in 2-D and 3-D Studies, Fibres and Fabrics, Ceramics, Printmaking, Jewellery and Silversmithing. A new programme in Applied Design (Wood) is currently being developed and will be initiated, subject to State Government support, in 1983.
The successful applicant should desirably have experience in tertiary administration, and possess relevant tertiary qualifications, teaching and professional experience. It is envisaged that the appointee will have some teaching responsibilities in one of the following areas: Drawing, Applied Design or Basic Design Studies.
Level of appointment and salary: Principal Lecturer III $A30,666 per annum; Senior Lecturer 1 $A32,936 per annum to $A35,077 per annum.
Enquiries of an academic/professional nature should be directed to the Principal, Dr C. A. O'Flaherty (Tel: (003) 26 0531), in the College.
In the academic administrative structure of the College, schools are grouped into Divisions. Heads of Divisions are normally appointed from the Heads of Schools and the appointee to this position will therefore be eligible for such higher appointment.
Applications quoting the above reference number, and including the names and addresses of three referees should be forwarded to: The Registrar, Tasmanian College of Advanced Education, PO Box 1214, Launceston, Tas. 7250, Australia. A copy should also be sent to the Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF, from home further information is available.
Closing date: 4 January 1983.

Librarians

UNIVERSITY OF CAPE TOWN
UCT Libraries
Librarian-in-Charge

Applications are invited for the post of Librarian-in-Charge of the Africana and Special Collections Division for appointment early in 1983. The Division includes the Department of African Studies, Manuscripts and Archives, Government Publications and Special Collections.
This is a senior library management position and the successful applicant must hold the Higher Diploma in Librarianship, or its equivalent, and have an in-depth knowledge of African Studies as a research area and a background of academic library administration.
The starting salary, depending on qualifications and experience, will be in the range R1 288 to R2 176 per month. In addition a service bonus of nearly one month's salary is payable annually.
Staff benefits include financial assistance towards further study, a 75% remission of tuition fees for dependants at UCT, generous leave privileges, a housing subsidy subject to State regulations, pension fund, medical aid and group life assurance.
Applicants should submit a curriculum vitae, stating full name and address, marital status, date of birth, educational and professional qualifications, details of working experience, current or last salary and the date on which duties could be assumed. Wording testimonials and the names and addresses of three professional referees should also be included.
Further information may be obtained either from Miss J Lloyd, SA Universities Office, Chichester House, 278 High Holborn, London WC1V 7HF, or from the University Librarian, University of Cape Town, Private Bag, Rondebosch, 7700, South Africa, by whom applications must be received not later than 15 February 1983.
The University's policy is not to discriminate on the grounds of sex, race or religion. Further information on the implementation of this policy is obtainable on request. H14

University of Cambridge
LIBRARIAN IN THE FACULTY OF ENGLISH

Applications are invited for the post of Librarian in the Faculty of English to take up appointment as soon as is convenient for the successful applicant. Candidates should normally be required to hold a good honours degree in English or in a related subject. Professional qualifications in librarianship and experience in an academic library would be advantageous, as might experience in teaching English. The Librarian will be responsible for the maintenance and development of the service of the English Faculty Library, which has total holdings of over 500,000 volumes. The appointment will be for three years, with the possibility of reappointment to the retiring age.
The maximum scale of stipendiary for Librarian, not ordinarily resident in college, is £8,005 rising by seven annual increments to £11,105.
Further information may be obtained from Mr G W Jenkin, Secretary of the Appointments Committee for Faculty and Departmental Librarians, General Board Office, The Old Schools, Cambridge, CB2 1TN, to whom applications (twelve copies), including a curriculum vitae and the names and addresses of four referees, should be sent so as to reach him not later than 17 January 1983. H14

Overseas

University of the Witwatersrand Johannesburg
Department of Divinity
CHAIR OF DIVINITY

Applications are invited from suitably qualified persons, regardless of sex, race, colour or national origin for appointment to the above post, with effect from 1 January 1984. In keeping with the University policy of rotating Headships the successful applicant may be required to take up the Headship of the Department for a period of three years in the first instance.
Applications will be welcomed from persons with suitable qualifications and experience in any of the broad areas presently covered in the Department of Divinity viz Old Testament Studies, New Testament Studies, Religious Studies including the History of Religion, Comparative Religions and Philosophy of Religion.
Interested applicants are advised to obtain the information sheet relating to this post from the Secretary of Universities African Office, Chichester House, 278 High Holborn, London WC1V 7HF, England, or from the Registrar (Personnel) University of the Witwatersrand, 1 Jan Smuts Avenue, Johannesburg 2001, South Africa with whom applications should be lodged not later than 28 February 1983. H12

Overseas continued

Queensland Agricultural College
(A multi-purpose College of Advanced Education)
Australia

Applications are invited for the following:
LECTURER IN TOURISM AND TRAVEL MANAGEMENT
LECTURER IN MANAGEMENT INFORMATION SYSTEMS
LECTURER IN FOOD TECHNOLOGY
INSTRUCTOR IN FOOD PREPARATION AND PRODUCTION

Appointees will be responsible to the Head of Department of Food Technology within the School of Food Studies.

Salary: Lecturer II/I $A22,430–$A30,476 pa.
Lecturer III $A19,335–$A22,149 pa. Instructor $A16,787–$A20,476 pa.

Qualifications: Degree or equivalent preferably with teaching as well as industrial experience. For instructors, appropriate qualifications in either Trade or Home Economics.

Further information, including statement of duties, available from the Agent General for Queensland, 392–393 Strand, London WC2R 0LZ Tel: 01-836 1533), to whom applications should be submitted quoting three referees.

Closing date 10th January 1983. H12

NATIONAL UNIVERSITY OF SINGAPORE
Department of Building & Estate Management

Applications are invited for teaching appointments ranging from Lectureships to Professorships from candidates with suitable academic and/or professional qualifications.
Preference will be given to candidates who have a minimum of three years relevant postgraduate experience and who are able to teach in the following areas, especially those listed under A below:
A. Statistics and Computing; Quantitative Studies in Management; Building Technology and Services; Land and Building Economics; Real Property Law; Building and Project Management.
B Valuation and Estate Management; Planning and Land Development; Real Estate Finance and Accounts; Quantity Surveying.

Gross annual emoluments range as follows:

Lecturer	S$27,510–57,040
Senior Lecturer	S$51,670–84,500
Associate Professor	S$74,030–101,970
Professor	S$91,490–120,820/125,010–141,780

(Sig£1=S$3.80 approximately)

The commencing salary will depend on the candidate's qualifications, experience and the level of appointment offered. Leave and medical benefits are provided. Under the University's Academic Staff Provident Fund Scheme, the staff member contributes at the present rate of 23% of his monthly gross salary subject to a maximum of S$690, and the University contributes 22% of his monthly salary. The total sum standing to the staff member's credit in the Fund may be withdrawn when he leaves Singapore/Malaysia permanently.
Other benefits include: a settling-in allowance of S$1,000 or S$2,000, subsidised housing at rentals ranging from S$100 to S$216 p.m., education allowance in respect of children's education subject to a maximum of S$12,000 annually, passage assistance and baggage allowance for transportation of personal effects to Singapore. Staff members may undertake consultation work, subject to the approval of the University, and retain fees up to 60% of their annual gross salary in any one year.
Application forms and further details on terms and conditions of service may be obtained from:

Mr R. E Sharma, Director, NUS Overseas Office, 5 Chesham Street, London SW1, England. Tel: (01) 235 4562
OR
The Director, Personnel Department, National University of Singapore, Kent Ridge, Singapore 0511, Republic of Singapore

WAIT Western Australian Institute of Technology

RESEARCH FELLOW IN SATELLITE METEOROLOGY AND OCEANOGRAPHY
(Salary range $28,000-$35,000 Aust)

The Institute is undertaking a three-year Satellite meteorology and oceanography project. This Perth based project will include utilisation of soundings from meteorological satellites; analysis of severe weather systems in the north-west of Australia; prediction of the sea-state from estimates of sea-surface winds.
Applicants require a higher degree and experience in satellite meteorology/atmospheric physics or satellite oceanography. Skills in computing and image processing advantageous.
The position is available from January 1983. In addition a short term appointment 3-6 months may become available. Interested persons are invited to apply.

Conditions include return airfares for appointee
Applications: Details including the names and addresses of three referees should be submitted not later than 21st January 1983 to Appointments Officer, School of Physics and Geosciences, Western Australian Institute of Technology, Kent Street Bentley 6102, Western Australia. Further information may be obtained by telex (AA 93983) or cable (WAINTECH) to Dr Lynch

PLEASE NOTE

FURTHER OVERSEAS CLASSIFIED ADVERTISING APPEARS ON PAGES 2 AND 4

Don's diary

Sunday

Arrive in Melbourne on the third Australian stop of a study tour to examine the effects on university level teaching of the current climate of financial retrenchments. The Hotel Victoria has a certain faded grandeur that is a pleasant contrast to the sanitized glass and concrete blocks that have taken over Australian cities, just as they have London or Toronto. More to the point, the Victoria offers a concession to guests of the Federation of Australian University Staff Associations. Picked up at the hotel for an afternoon drive around the city by the director of Monash University's Staff Development Unit. During a Devonshire cream tea in the hills we talk about the effect of recent cutbacks on "fringe" activities, such as staff development. The Monash unit is currently under review, and there is pressure to generate outside income – for example, by doing contract work in developing nations. A team of three is presently setting up a staff development programme in Indonesia and, commendably, the director is currently trying to learn sufficient Indonesian to make an opening speech to the first major workshop.

Monday

By tram to the Spencer Street railway station, and then by train of even older vintage to Geelong, some 50 miles down the coast. This was once the major city of Victoria until the more easily accessible harbour at Melbourne replaced it, and the large wool warehouses still dominate the city. The day is spent at Deakin University, established in 1975 with a unique emphasis on distance education. Some 3,500 students are currently involved in external programmes that in many ways resemble the Open University system – but with less emphasis on television and on tutorial groups in the distant locations. Deakin also teaches conventional courses on its three campuses, in many cases using the same materials prepared for external students. Whether on or off campus, tuition is presently free, and includes all course materials. However, the current move by the Australian Tertiary Education Commission to close down the engineering school of Deakin has had some impact on public confidence in the institution, and last year for the first time the number of applications by external students fell below quota. Back in Melbourne, dinner of fresh oysters and yabbies (a small local crayfish). The cost of eating out in Melbourne considerably ameliorated by the BYO (bring your own bottle) tradition at all but the most expensive restaurants.

Tuesday

Watch convolutions of the Falkland Islands crisis on breakfast television. Despite instantaneous satellite communication, commentators seem at a loss to interpret what is really happening (although the line is patriotically pro-British). Use the morning to try and work in the state library, but considerably handicapped by the restrictions on taking anything inside except pencil and notepaper. So instead go to free screening in the library cinema of ironically, *Nanuk of the North*, complete with blizzards and dogsled teams. Afternoon visit to University of Melbourne's Centre for the Study of Higher Education, which has been involved in staff development longer than any other Australian university. Long discussion on whether it is really possible to change the quality of student learning by tinkering with the lecture technique. Evening concert by Melbourne Symphony Orchestra. Richard Rodney Bennett's horn concerto gets cool reception despite virtuoso performance by local son, Barry Tuckwell.

Wednesday

Give seminar on the evaluation of university teaching at Monash University. (Why are so many Australian universities named after somewhat obscure public figures?) Discussions with staff association executive about unionization – the idea seems to have little support among the Australian academic staff. Leave Melbourne airport in torrential rain, but Sydney is warm and sunny.

Thursday

To University of Sydney for meeting of directors of staff development units on the Australian degree-granting institutions (universities and colleges of advanced education). Surprisingly, there are over 30 directors present, plus myself and another two guests (from Thailand and Germany) Staff development has been firmly established in Australia for many years (two of the units are over 20 years old) and only a handful of institutions do not have a formal staff development centre. Despite the current climate of retrenchment in Australian higher education, units have on the whole survived reasonably well. Indeed, a good part of the discussion at the meeting concerned the directors' response to a recent recommendation by a working party of the Austrian Vice Chancellors' Committee that there is compulsory induction courses for all probationary staff.

Friday

The meeting continues in a balmy 26°C, which passes for an early winter day in Sydney. More talk of how to sustain and improve the quality of teaching and learning in a time of financial constraint. Amid the gloom, a reflection from one director that at least things aren't as bad as in Britain. An afternoon stroll around the harbour reveals that the Oriana has just docked, having so far escaped the clutches of the Royal Navy.

Saturday

King's Cross (Sydney's Soho) for the annual meeting of the Higher Education Research and Development Society of Australasia, which is celebrating its tenth anniversary. Those in attendance included both professional staff developers and academics from a wide variety of disciplines, but with a common interest in improving the quality of university teaching and learning. Despite the climate of retrenchment, the atmosphere was generally optimistic, but with a feeling that institutions with survive in the long (and perhaps the short) term on the basis of the quality of the education experience, and the extent to which this experience prepares students to cope with an increasingly complex world.

Christopher K. Knapper

The author is teaching resource person and professor of environmental studies at the University of Waterloo, Canada. He spent a recent sabbatical leave examining the effects of financial constraints on university teaching methods in various parts of the Commonwealth.

Iniquities in the student loans system

Tessa Blackstone

Not long ago the editor of this newspaper wrote a spirited defence of our student grant system. I am now going to exploit his generosity in giving me a regular slot by criticizing his editorial (October 29). Some of the things he said cannot be allowed to pass without comment. And that comment should not just come from the Federation of Conservative Students and others of a Josephite persuasion who frantically pursue market solutions whatever their consequences. While I agree with some of the things Peter Scott claimed, he went slightly over the top in his defence of the existing system of grants.

There are three main reasons why those of us on the left should be considering some modifications to the present system. First it has without doubt reinforced the inflexibility and lack of diversity of our system of undergraduate education. Second it is unquestionably regressive in its effects. Third it is riddled with all kinds of iniquities with respect to eligibility. I would like to discuss each of these in turn.

In 1960 the Anderson report was published advocating a system of mandatory grants for all qualified British students with a place in an institution of higher education following a recognized course. This recommendation was adopted. Since then the system has been tinkered with from time to time but remains fundamentally the same as when it was first introduced. For three years most students receive a means-tested grant based on their parents' income. Universities, polytechnics and colleges are thus guaranteed a clientele for courses of that length. Why work harder and have shorter more concentrated courses, for example, if the money is provided to support students for a longer period? One of the reasons why the Diploma of Higher Education was a non-starter from the beginning was that the existing grant system meant that there was no incentive to higher education institutions to introduce it. The lamentable failure of the system to respond to the needs of older students by providing more part-time and continuing education cannot of course be ascribed just to the student grant system. However, the existence of grants for school leavers and the lack of adequate financial support for older or part-time students has again not been conducive to reforming the system in favour of these groups.

The second criticism of grants, is that they entail a transfer from the poorer taxpayers, who do not on the whole benefit from them to the richer taxpayers, who are much more likely to do so. It is here that I wish to disagree most strongly with the editor. He argues that grants have helped to widen the social base of higher education and that they have opened up opportunities to large numbers of lower-middle and middle-class students who would not have benefited from higher education without them. As such the present system of grants has been "surprisingly successful in meeting social objectives". He also argues that grants have encouraged the greater participation of women.

As one of the liberally-inclined to whom he refers, who previously supported the present grant system, I wish he were right, but I believe he is wrong on both counts. The working class defined in terms of those doing manual work still makes up nearly two-thirds of the population yet only a quarter of students in universities come from this social background and their proportion has not increased since Robbins. To say that their numbers have gone up since higher education has expanded is not good enough. In these circumstances how can we say that the social objectives of a system of higher education open to all regardless of social background have been achieved? Nor regrettably is it the case that grants have led to the greater participation of women. While there has been a welcome increase in their proportion among university undergraduates the gap between male and female school leavers' representation in higher education as a whole appears to be as high in the early 1980s as it was in the mid 1960s. No, student grants have not created the equal opportunities which many of us have espoused; and it was probably naive to imagine that they ever would.

The third criticism of the grants system is that it is patently unfair to a number of different groups including part-time students and those who are not on "recognized courses" for a mandatory award. This latter group, which consists largely of sub-degree students on, for example, paramedical courses such as chiropody, and many courses in non-advanced further education, have to rely on discretionary awards.

Another possible reason for maintaining the invidious distinction between discretionary and mandatory grants is a desperate attempt on the part of successive governments to keep down expenditure on student maintenance. Peter Scott's editorial is hopeful that the grants system will evolve so that distinctions of this kind will be abolished. Past experience, however, gives little ground for such hope. In spite of substantial criticism about the unfairness of the current system nothing has been done.

Moreover a more generous system that covers more students may act as a barrier to expanding higher education because of governments' fears about open-ended commitments. I am not suggesting that we should abandon grants for loans. However, there may be a case for considering a mixed system of grants and loans with loans topping up grants. Our editor points out that those of us who benefited from grants should not rush to replace them. Perhaps I should declare an interest. As a student, who suffered from a particularly harsh interpretation of grant regulations, a loan at one point in my career would have greatly helped me. And I know there are plenty of other cases where this would still be true.

Union view

Raising the standard for standards

The prime concern of any body overseeing the public sector of higher education should be with standards. Not with finance; not with numbers of students but with standards. For if the higher education which is provided is not of a level which enables those partaking of it to compete with their peers from universities at home and abroad and which, through them, enables the country to compete in a competitive world, then the institutions, from the national point of view, may as well close down.

There are, of course, arguments for providing "higher education" as a means of keeping young people off the labour market (and off the streets) – but one hardly needs a national plan for that purpose. Similarly, there are arguments for providing higher education to meet the "cultural" demands of the adult population – but this could be done on a local or entrepreneurial basis.

A national body which is set up to plan public sector higher education must presumably be there to ensure the standard of that higher education. There are always constraints on cost but, if standards are of no concern, then a simple cut in budget would suffice to reduce the expenditure to any predetermined level. There will naturally be attention to the distribution of higher education among different subject areas and different academic levels; yet this is also related to standards since the choice between one type of provision and another is a matter of judgment of the overall quality of the output.

Presumably some of those in local authorities see the purpose of their participation in higher education to be to ensure that "their" students are provided with higher education of the requisite quality. If they are not concerned with quality, then they should be happy to allow students to be taught in any establishment, however poorly provided, or even simply to buy qualifications from enterprising west-coast American "universities".

It may be argued that the prime body which establishes standards in the UK is the Council for National Academic Awards. However, the decision to provide for students to study at a recognized degree level is a decision about standards, as would be the alternative decision to provide only lower level courses – two year

APT

diplomas, say – for those who attended public sector institutions. If the level of provision in institutions were dropped further, to the point where CNAA refused to validate courses, then the standard of higher education would have dropped – by conscious decision or otherwise – to below degree level.

In order to ensure that standards are maintained, the national body would need to take a number of steps. I would need to establish criteria for the levels of provision for different courses and for the mechanisms required to attract, keep and maintain the necessary standard of staff. In particular, it would have to seek to generate a level of unit funding and capital investment which was recognized as equitable across the binary line. There are, of course, two ways of increasing unit funding in the public sector. One is to increase the total funding to institutions – a 50 per cent increase would bring their revenue funding up to that of the universities. The other is to reduce the number of students by one third – a prospect not attractive to the Government.

Within the context of standards, it is interesting to ask what has been the contribution of the National Advisory Body. Apart, that is, from spoiling the Christmas of almost everyone involved in public sector higher education. The setting up of the NAB showed the power of political against educational arguments. The failure of NAB to make any impact on the proposals for reorganization of teacher training has reduced its credibility.

There has been little publication from NAB that it is concerned with anything but cutting expenditure. The impression which the country has gained of an expensive, generously funded public sector of higher education has hardly been dispelled by the NAB "exercise": no statements have issued forth to the public to suggest an intention to improve the unit funding relative to the universities. Rather, the discussion of two-year diploma courses for the students who "fail" to get into university has suggested a cynical attempt to provide cheap and ersatz "higher" education.

The UK public sector probably has the most cost-effective provision of higher education in the developed world. Its provision should be improved and encouraged, its standards upgraded. With a dedicated coordinating body its future should be assured.

There is time before next Christmas for the members of NAB to stake a claim to be a part of such a dedicated body.

Maureen Douglass

The author is chief executive of the Association of Polytechnic Teachers.

LETTERS TO THE EDITOR

Publishers Association, blank cheques and the laws on copyright

Sir, – I have no wish to enter into a sparring match with John Davies of the Publishers' Association on matters of principle. It is quite clear from his article (*THES*, December 3) that he and his association are determined to impose licensing schemes upon the universities with total disregard for the damage they will inflict upon higher education. It is equally clear from the tone of the article that there is little to be gained by entering into a dialogue with Davies and his colleagues as long as they are prepared to treat so dismissively any alternative to such schemes.

Of course, it is quite understandable that the Publishers' Association should want to tighten its grip on the blank cheque which Whitford and the authors of the Green Paper appear to have handed it. It is also understandable that it should wish to play down the far-reaching effects of licensing schemes, for, make no mistake about it, the Publishers' Association's policy will mean that every copy of every page, whether for research or teaching will have to be recorded, notified to the publisher and paid for.

What I find less understandable is why Davies should have chosen to have mounted a personal attack on the accuracy and integrity of my presentation of the existing copyright law. Fortunately, the Publishers' Association does not yet hold a monopoly on the interpretation of the 1956 Copyright Act, and the law is not as clear-cut or loaded towards the publishers' interests as Davies would have us believe. Neither Mr Davies, the Publishers' Association, the writers of legal textbooks nor the authors of the Government Green Paper are authorities for resolving the many ambiguities and some apparent contradictions contained in the sections of the act. Until the law is changed or the courts resolve these issues, there remain several sections of the act which are open to more than one interpretation and the fact that my interpretation may be at variance with Davies' does not give him the right to accuse me of ignorance, inaccuracy and misrepresentation.

To take a specific issue that Davies raises, let me assure him that Section 41 of the act has not "escaped my notice". Nor has it escaped my notice that the section refers specifically to copying by schools as defined in the Education Acts. Indeed, the purpose of s.41 is to provide a further exemption for schools to allow free use of texts in teaching (otherwise than by duplication). There is no prohibition contained in s.41, and Mr Davies is misleading your readers, perhaps unintentionally, in implying that there is.

In any event, the real issue is whether the "fair dealing" protection offered by Section 6 excludes multiple copying. It certainly does not do so explicitly, and my argument is that there is no reason why it should be read that way.

If the law was as Davies suggests, there would be little purpose in the Publishers' Association's campaign to persuade the Government specifically to exclude multiple copying from any future "fair dealing" protection.

Perhaps I could forgive Davies' intemperate and ill-conceived remarks about my article if his reply had not itself contained so many distortions and half-truths. Let me now deal with some of these.

1. The writings of academic authors are not being "wantonly pirated" by present teaching practices in universities. Nor is there any intention among those who support the extension of "fair dealing" protection specifically to cover copying for classroom use to undermine "the viable financial basis" of publishers. We have always made it quite clear that publishers and authors should be compensated for any copying which adversely affects the sales of the particular book or periodical.

2. Davies' statement that "for every learned article published in the United Kingdom 12 copies are taken in libraries and 12 in academic departments" would appear to be a wild exaggeration, regardless of the fact that it may have been given in evidence before the Wolfenden Committee. Before one accepted such evidence, one would want to know who presented it and how it was obtained. As far as I am aware, there has in fact been no reliable survey carried out on this issue by any reputable, independent researcher.

3. The link that Davies implies between copying in academic institutions and the decline in journal circulation figures is highly suspect. Davies, perhaps more than anyone, is aware that the decline in the sale of books and subscriptions to journals is the result of a number of interrelated factors, not least of which is the Government cutbacks in higher education. Is Davies really trying to suggest that there is a causal link between the circulation figures for learned journals and the restrictiveness or otherwise of a country's copyright laws?

4. Davies' suggestion that *ex post facto* payments for copying are any less administratively cumbersome than prior consent is wholly misleading. Under the licensing schemes proposed by the Publishers' Association university departments will not only have to keep an accurate record of every page of every book or article copied and the number of copies taken. They will also have to account individually to each publisher from *whose books or articles a copy or* copies were made. This complicated and time-consuming exercise is a far cry from my own suggestion that each academic institution should keep one copy of all materials distributed for classroom instruction so that a Department of Trade inspector could satisfy himself that the "fair dealing" protection was not being abused.

5. Few readers of *The THES* will have been taken in by Davies' assertion that under the Publishers' Association licensing schemes "[T]he user is simply being asked to pay the going rate for material copied." Of course, there is no "going rate" except for that determined by the publishers. The recent rates proposed by the Copyright Owners Association of 10p per copy of each periodical page and 4p per book page give some indication of the generosity, magnanimity and concern for academic principles that one could expect from the publishers if they succeed in eliminating the existing "fair dealing" protection.

6. Davies invokes the National Association of Authors as supporters of the Publishers' Association's campaign to tighten the present copyright laws and impose licensing schemes. He also berates me for my supposed ignorance of this body's views. To tell the truth, I am aware of the group's existence and of its support for the Publishers' Association's position. However, since I am myself a published author and have never been invited to join let alone submit my views on copyright to the National Association of Authors, I had my doubts as to whether this group was really qualified to represent in any democratic way the views and interests of academic authors like myself. I therefore decided to ignore its existence for the purposes of my article.

Finally, may I take the opportunity to thank Professor Saul for his academic and economic issues involved in multiple-copying and my argument for the extension of the "fair dealing" protection. Where I differ from Professor Saul is in the tactics that I believe should be adopted by academics in confronting the obvious threat to academic freedom presented by the mercenary attitude of the Publishers' Association and the Association of Copyright Owners and the support it appears to have gained in Government circles.

For academics to accept Professor Saul's advice to avoid multiple-copying for classroom purposes would, I believe, be an admission of defeat and a prescription for disaster. It would in effect signal an acceptance of the Publishers' Association's restrictive interpretation of the Copyright Act and this in turn would strengthen the association's hand in the forthcoming Parliamentary debate over changes in the copyright laws.

The "fair dealing" provision in the existing law does give a modicum of support for the continuation of what Professor Saul himself describes as "controlled multiple copying for class or seminar use – as a substitute only for the individual use of a photocopier by each student." Far from turning tail and running, academics should stand their ground and fight for the vital principle of unfettered dissemination of information in the cause of education and research.

Yours sincerely,
MICHAEL KING,
School of Law,
University of Warwick.

Nuttgens statistics

Sir, – The Patrick Nuttgens column is often worth reading and his statistical exercise last week (*THES*, December 10) was no exception.

But there are other comparisons which can be made from the sources cited. Perhaps the most interesting is the salary cost per member of academic staff. In 1981/82 Leeds Polytechnic had 691 "academic and other Burnham-salaried staff" who appeared to cost £10,875,000, making a cost per academic of £15,784. Leeds University 1271 academics cost £18,797,000, making a cost per academic of £14,789 (and this includes over 200 clinical academic staff of NHS-related salaries and excludes over 100 externally-funded research staff whose average salaries are below the median of the lecturer scales.)

This rather makes nonsense of the National Association of Teachers in Further and Higher Education claim, which you also report, for "parity" with university academic scales.

Yours faithfully,
DAVID MORRIS,
Leeds University Information Office.

Spanish history

Sir, – I hope you will allow me to enter a strong protest against Henry Kamen's misleading remarks about myself and my book which appeared in *The THES* (November 19).

Dr Kamen begins with some general remarks about the whole Eighty Years War (1568–1648) in the Low Countries, taking me to task for not sufficiently acknowledging previous authors and being less original than I imagine. Let me hasten to state that in fact my book says nothing whatever about the period 1568–1605 and I make no comment whatsoever on the many scholarly contributions dealing with the first half of the conflict. Kamen employs this initial misrepresentation to suggest that "in essence" my study "does not supersede the short outline provided by Geoffrey Parker's *Spain and the Netherlands*", a valuable collection of essays but mainly devoted to the pre-1609 period. It will be immediately obvious, even to the most casual reader, that none of my main themes are more than mentioned *en passant* in Parker and that several are not mentioned at all.

Dr Kamen also takes it upon himself to inform your readership that I have "hitherto worked in Mexican history". May I point out that during the last 12 years I have worked only on Spain and the Dutch Republic and that the "Mexican" phase of my researches, towards the beginning of my career, was very brief, extending only over five years.

The core of Dr Kamen's case is that while I have "added considerable detail to the story of Dutch politics and commerce" I have not added anything substantially new and that I have "done no significant work on the Spanish side". In particular, he maintains that my claim that the Spanish maritime embargoes against the Dutch were highly effective runs counter to the evidence. Now I happen to have submitted 72 pages of fresh evidence, mostly from previously unpublished sources, showing that Spanish economic measures had a drastic effect on the Dutch. If Dr Kamen disagrees, let him try to rebut my evidence but to assert that I have contributed nothing fresh on the Spanish side is outrageous misrepresentation.

Similarly with my lengthy analysis of Spanish military strategy and practice (which differs radically from Parker's) and my dozens of pages on Spanish diplomatic contacts with the Dutch after 1621. On the latter virtually nothing has previously been written. Perhaps I have made mistakes or misinterpreted the evidence but to declare that these sections do not involve new material from Spanish archives and novel approaches to Spanish history is to show an almost total disregard for truth.

Dr Kamen and I have previously crossed swords in a well-known historical journal. In our exchange I asserted that he has entirely misunderstood the process of the decline of Spain in the seventeenth century. As any interested reader can see for himself, Dr Kamen is not only polite about my arguments there (which are exactly the same as those in the book) but generally rather defensive. To then turn around in a review situation and declare that I am not a "serious student" of Spanish history is, I would submit, nothing less than perverse.

JONATHAN I. ISRAEL.
Reader in History,
University College, London.

Library problems

Sir, – Geoffrey Beard's letter "Using Libraries," November 19) struck a chord with me. Although formerly an academic, I am now in a nine to five job, and have become what is euphemistically known as an "independent scholar." In 1976 I held a post-doctoral fellowship at Edinburgh University's Institute for Advanced Studies in the Humanities and have continued my work done at the institute with the help of a privileged borrower's ticket at the university library.

In the summer of 1981, however, I was informed that due to "increased pressure on stock and diminishing staff" I could no longer borrow books. Since I can only work at weekends this restriction has virtually brought to an end the work I began at the institute. I have attempted to soldier on with the help of sympathetic staff who check books out for me, but I have had to withdraw from a number of commitments because of this embargo.

Repeated request to the librarian by myself and university staff members to reconsider this restriction have met with responses ranging from bald refusals to attempts to justify the situation by pointing out that retired staff members are also not allowed to borrow books! They, however, are not in nine to five jobs.

Every other Scottish university library allows borrowing by reputable independent scholars, usually on payment of a fee.

Yours sincerely,
DR MARINELL ASH,
42 Woodburn Terrace,
Edinburgh.

Book fusion

Sir, – In your description of me under my article "Israel in search of past and future" (*THES* November 26) there was an inadvertent conflation. My book *Jewish Writing and Identity in the Twentieth Century* appeared this last May (Croom Helm, London) and my *1948 and After: Aspects of Israeli Fiction* is due out this coming May (Department of Near Eastern Studies, University of Manchester – JSS monograph series).

Yours
LEON I. YUDKIN,
Department of Near Eastern Studies,
University Manchester.

Page participation

Sir, – In *The THES* (December 3) we report that Mr William Waldegrave, junior minister responsible for higher education, announced in the House of Commons that the age participation rate – young people entering higher education expressed as a percentage of 18-year-olds – for England stood at 13.2 per cent, the highest since 1975/76.

The article pointed out that higher participation was recorded in the early 1970s and referred to the peak of 15 per cent in 1972–73. That figure included entrants to initial teacher training who did not have the normal "A" level passes normally required as the minimum requirement for entry to higher education. Such entrants are excluded, the APR for 1972/73 was 12.3 per cent compared with the 13.2 per cent quoted by Mr Waldegrave.

Yours faithfully,
[illegible] GRIFFIN,
Head of Information,
Council for Education and Sci-

Mystic of tenure

Sir, – May I add a couple of related points to your very timely and enlightening leader on tenure? (*THES*, *November 26*). Though there are arguments for tenure that command intellectual respect, there is only one argument that, in this country, at least, commands much emotional respect in society at large. And that is the political. People do feel deeply and no doubt in a confused sort of way, that dons should not be sacked for their political views. Lysenko and McCarthy make our case more than Sir Ernest Barker.

There is an element of the mystic here, for no one appears to have succeeded in demonstrating definitely, (and certainly not in your columns) how this argument can be applied to the academic profession more forcefully than to most other.

So those who have argued in your columns that tenure is a defence against politicians who wish to reduce the system may be right, but may also do a dangerous disservice to the community of scholars. For they are using a political umbrella as a political weapon. The leaders and officials of the AUT have indeed an unenviable task. They are elected, or paid, to think up ideas to protect their members. They have the unpleasant task of weighing the immediate plight of a few against the long-term interests of a major profession. For the latter, it would be better to argue in terms of contract rather than of tenure: and there is no certainty that it would be less effective for the former. For the AUT, it would be better not to risk the common fate of all the middle-aged who brandish brollies.

Yours faithfully,
ROWLAND EUSTACE,
Administrator,
Society for Research into Higher Education,
Guildford, Surrey.

Quality of maths

Sir, – I was interested to read your article on "The Quality Game" (*THES December 3*) particularly since it was a topic which recently came up during an informal gathering of sixth form careers advisers.

We were discussing mathematics courses. I had personal experience of two outstanding mathematicians who had found university courses difficult; one who in fact changed courses due to "poor teaching".

Two other teachers present had similar experiences and the general conclusions reached were that one should be extremely careful in advising candidates to aim for degree courses in mathematics (my two candidates had achieved As in maths and one other subject). Secondly it was felt that good "research" contributions could very well be poor "teaching" centres.

Perhaps mathematics departments might be able to give us some advice?

Yours sincerely,
BRIAN HEAP,
Hutton Grammar School.

Letters for publication should arrive by Tuesday morning. They should be as short as possible and written on one side of the paper. The editor reserves the right to cut or amend